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The Massachusetts Medical Society.

MEETING OF THE SECTION OF MEDICINE, JUNE 8, 1920.

The Diagnosis and Treatment of the Hemorrhagic Diseases.

By Ralph C. Larrabee, M.D., Boston.

The object of this brief paper is to state the clinical facts concerning the principal diseases characterized by tendency to bleed, in the simplest possible terms, and, by eliminating unessential technicalities of nomenclature and method, to aid the practitioner in recognizing and managing them.

The normal processes of hemostasis by which bleeding from small wounds is spontaneously stopped comprise several factors. First, when a small vessel is cut or torn, the injured ends contract and crinkle. Second, the blood in the injured end clots. Inasmuch, however, as clotting requires several minutes, it is difficult to conceive how it alone could bring to a standstill the most sluggishly flowing stream even from the smallest vessels. The outflow of blood must first be stopped by other mechanisms. Thirdly, the blood platelets are an essential element in hemostasis. Normally separated from one another in the flowing blood-stream, they adhere to any foreign body or injured spot in the vessel-wall and form sticky masses which effectually plug the ends of torn capillaries.

A study of the coagulation factors in their entirety involves technical difficulties so great as to be out of the question in the ordinary clinical investigation of the every-day case. There are, however, two simple bedside tests that can be performed by anyone,—the estimation of bleeding-time and of coagulation-time.

Bleeding time is tested by making a small incision in the lobe of the ear—about such a wound as would be made for a cell count, using the point of a scalpel—not a needle. The blood is removed every thirty seconds by touching the puncture gently with a piece of blotting paper or filter paper. Normally, bleeding ceases in from one to three minutes, depending somewhat on the depth of the puncture and the state of congestion of the capillaries. Anything over eight minutes is distinctly abnormal.

Prolongation of the bleeding time usually means deficiency in the number of blood platelets, and when it is present one can usually infer that the bleeding is due, at least in part, to this deficiency. It also occurs in cirrhosis and other liver diseases where fibrinogen is deficient. Before assuming that prolonged bleeding time is due to lack of platelets one should, therefore, inspect a stained smear.

Coagulation time has been tested in many complicated ways. Those which use capillary blood from skin punctures are objectionable because, in passing through the injured tissues, the blood picks up substances which may shorten the time materially. The best way to test clotting time is to take some blood and see how long it takes to clot. About two cubic centimeters of blood are taken from a vein in the usual manner and put into a test tube having a diameter of about one centimeter, both the syringe and the tube having been rinsed out with normal salt solution. The tube is allowed to stand upright. Every minute it is turned slightly sidewise. When it can be inverted without spilling, clotting is considered to be complete. The normal time is four to eight minutes. Anything over twelve minutes is decidedly abnormal.

Prolonged coagulation time signifies deficiency of one or more of the several chemical substances concerned in the complicated process of fibrin or clot formation.

If the tube containing the coagulated blood is allowed to stand for a few hours the clot normally retracts. Failure to retract is evidence of marked decrease of platelets. The serum may then be used for the Wassermann reaction or for other studies.

Further examination of the blood is necessary to determine the type and degree of anemia. This includes the usual corpuscle counts and the staining of a smear by the Wright or some similar method. A platelet count is not necessary as an inspection of a smear gives sufficiently accurate evidence.

It is impossible, considering the limitations of this paper, to speak exhaustively of the individual diseases characterized by an abnormal tendency to bleed. The following brief statement must suffice:

In the aplastic group of diseases the chief, and in some conditions the only factor involved, is the platelets. Their normal number is about 300,000 per cubic millimeter. When they are decreased to about a fifth or less of this number the tendency to bleed becomes manifest.

In purpura hemorrhagica the only lesion is decrease of platelets. Bleeding time is prolonged. Coagulation time is normal. If anemia is present, it is the result of hemorrhage and is of the benign or secondary type. There is no decrease of leucocytes. The decrease of platelets is quite obvious in the smear.

Aplastic anemia is probably closely related to hemorrhagic purpura. In the latter disease the bone marrow fails to produce the normal number of platelets. In aplastic anemia the functional deficiency of the marrow goes further and involves not only (1) its platelet function, but also (2) its property of producing certain leucocytes, notably neutrophiles, and (3) the red corpuscles as well. Hence the blood will show abnormally low white and red counts, with peculiarities which make the picture quite definite, and distinctly different from that of the ordinary post-hemorrhagic anemia. The anemia is rapidly developed and soon becomes extreme. It usually precedes the hemorrhages and is commonly greater in degree than the bleeding would lead one to expect.

The bleeding is due in part to numerical deficiency of platelets, but one of the chemical substances concerned in clotting, a substance derived chiefly from the platelets themselves, is also deficient. Hence, in addition to prolonged bleeding time, there is also prolonged coagulation time, though the latter may not be extreme.

In leukemia there is usually a tendency to bleed. This is due to a sort of aplasia of the marrow,—the normal elements being replaced by the excessive overgrowth of the leukemic tissue. In the lymphatic type there is almost always marked decrease of platelets with consequent increased bleeding time and non-retractile clot. Frequently there are other disturbances of the coagulation elements, so that the condition is somewhat complicated. As the disease is, except in its aleukemic phase, easily recognized from the blood picture, these factors are not important from a diagnostic standpoint. The important thing to remember is that leukemia is usually accompanied by marked hemorrhagic tendencies, that these tendencies are almost impossible to control, and that operations are hence to be avoided unless coagulation tests are normal.

Pernicious anemia may also be mentioned here, since some cases show this same tendency to bleed abnormally. Platelets are usually decreased, but diagnosis does not depend on studies of coagulation. Transfusion seems to control the bleeding and operations are not particularly dangerous.

It will be seen that decrease of platelets occurs in a number of different conditions. The matter is further complicated by the occurrence of ill-defined and intermediate states. It is interesting also to note that many febrile diseases, such as influenza and typhoid,—diseases in which hemorrhages may occur,—frequently show decrease of platelets, leucopenia and other evidences of marrow deficiency. They cannot, however, be considered in detail here.

In sharp contrast to these diseases, showing numerical deficiency of platelets as an important factor, is hemophilia. Here there is first the characteristic heredity, the disease appearing only in the males and being transmitted only by the females. Hemorrhages are less apt to be spontaneous or to consist of petechial eruptions and oozing from capillaries. The injury is more apt to be one which would normally cause some bleeding, only here a hemorrhage which would normally cease spontaneously in a few minutes continues and a trivial wound becomes serious. The disease is due to a deficiency of prothrombin, one of the chemical elements concerned in coagulation. Bleeding time is normal; platelets are normal in number, though not in quality; and the clot, once formed, retracts normally. Coagulation time is prolonged, sometimes over an hour. Blood counts and smears are normal, unless anemia has resulted from loss of blood, in which case the same picture is presented as in any post-hemorrhagic anemia.

Hemorrhagic disease in the new-born is similar to hemophilia in that it is due to deficiency of the same element—prothrombin. As in hemophilia, bleeding time and clot retraction are normal, but coagulation time is notably prolonged. The peculiar heredity of hemophilia is, however, lacking and the condition is a temporary one, existing only for the first few days of life. Only rarely does true, inherited hemophilia of the permanent type manifest itself at this age, and most babies who survive for a few days remain free from hemorrhagic tendencies thereafter.

Here again the picture is complicated by the occurrence of certain anomalous cases, and particularly by the existence of congenital purpuras and hemorrhagic infections. As in all diseases of the hemorrhagic group, it is often easier to classify a given case after thorough study of coagulation factors than it is to give it a name.

There are several diseases or groups of diseases of the liver and bile passages in which hemorrhages are prone to occur. The most significant, from its frequency and surgical importance, is chronic obstructive jaundice. After this condition has existed for some weeks, operations are apt to be attended with serious hemorrhage, and it is important to be able to pick out the cases where undue bleeding is liable to occur. The condition is due to deficiency of available calcium in the blood. The danger can be recognized by testing the coagulation time. If the latter is normal, operation is probably safe so far as undue hemorrhage is concerned. If coagulation time is greatly prolonged, operations should be avoided, or postponed until it is normal.

Cirrhosis of the liver may show a tendency to bleed. The bleeding time is prolonged, but platelets are normal. Coagulation time is normal but the clot is flabby and poor in quality. These conditions are due to deficiency of fibrinogen. Operations should be avoided in this disease as long as the bleeding time is prolonged.

The conditions described by no means complete the list of diseases associated with hemorrhagic tendencies. In some of them, like scurvy and simple purpura, the coagulation factors appear to be normal. Abnormal bleeding may probably result from weakness of the blood vessels, from emboli and from entirely unknown causes. I have confined myself to the group of diseases whose nature is more definitely known, and especially to those which I have myself observed,—in the belief that such diseases will also constitute the bulk of those occurring in the practice of others.

The treatment of these diseases is today such that the term "uncontrollable hemorrhage" is no longer appropriately used, except perhaps in leukemia. It should be said, however, of the whole group of hemorrhagic diseases, that, while appropriate treatment will almost invariably stop the bleeding, the control is only temporary. Except where the causative disease is itself temporary, the tendency to bleed will sooner or later recur.

Local applications are not very satisfactory. The older astringents and styptics such as ferric chloride, alum and the like do little but make an impressively nasty mess. Epinephrin solutions will often control slight bleeding from the mucous membranes, but their action is quite fleeting. Indeed, local applications have but a slight value in these diseases.

Cephaline and other tissue extracts such as coagulene, coagulose, etc., are of somewhat greater value locally, both in platelet cases and in hemophilia. In spite of its marked effect in test-tube experiments, it appears to be quite ineffectual when used intramuscularly or intravenously. The possibility of producing emboli would seem to make its intravenous use inadvisable.

Calcium salts are of value only where the hemorrhagic tendency is the result of calcium deficiency. Such is the case in chronic obstructive jaundice, and, practically, only in this condition. In such cases, where operation is contemplated and coagulation time is materially prolonged, calcium lactate should be given by mouth in large doses, as high as 100 grains daily, for several days previous to operation. Operation should be deferred until coagulation time is normal.

Animal serum contains, when fresh, prothrombin, the coagulation element which is deficient in hemophilia and hemorrhagic disease of the newborn. It does not contain platelets and hence can be of no value in hemorrhagic purpura and other diseases where the bleeding is due to platelet deficiency. Its prothrombin disappears in a few hours. Old serum is worse than useless. The value of diphtheria antitoxin rests wholly on empirical grounds. Theoretically and experimentally serum is of little value.

The intravenous administration of whole blood comes nearer to being a universal panacea in this group of diseases than any other procedure. It is the method of preference except in chronic obstructive jaundice, where calcium is better. Not only does it supply all the elements of coagulation, but it also supplies red corpuscles, and hence benefits the anemia. Either the citrate or the paraffined tube method may be used. My own preference is for the latter. The citrate method causes more reactions and introduces fewer platelets. It should be stated that the benefit to be derived from transfusion in platelet deficiency is but brief, for the life of a platelet is not over four or five days. But transfusion is temporarily an efficient means of controlling the bleeding.

If facilities for intravenous transfusion are lacking, rapid intramuscular injection of small amounts of whole human blood may be used, preferably in the tissues near the bleeding area. The technique is quite simple. Especially good results have been reported in purpura hemorrhagica.

In conclusion it should be said that while the individual diseases comprising this group are not very common, taken as a whole they are frequent enough and serious enough to deserve attention. The hemorrhages are often sudden and urgent. If they are to be successfully handled, the causative disease must be determined in each case and appropriate treatment must be promptly undertaken.

DISCUSSION.

DR. THOMAS E. BUCKMAN, Boston: It would be difficult to add anything to the text of Doctor Larrabee's paper, but I should like to say a word or two in regard to the explanation of some of the phenomena which he has mentioned. It seems strange that the bleeding time in hemophilia is essentially normal and yet so much prolonged in purpura hemorrhagica. I think we may explain this by considering the fact that in purpura hemorrhagica there is a universal thrombopenia; that is, the thromboplastic substance derived from the platelets is not only diminished in the blood itself but also in the fluids of the body and this because there is such a paucity of platelets. Consequently, when the ear is pricked and the blood begins to drop away, it does clot, to be sure, but poorly, and the clot is readily wiped away. On the other hand, in hemophilia, we are dealing with an inhibition of reaction; that is to say, the speed with which the platelets appear to go into solution is very much retarded, so that ultimately we will get a clot from hemophilic blood and it will be as tough as a clot from normal blood. Nevertheless, reaction is so slow that when blood is taken from a vein in hemophilia, if no injury to the platelets occurs, then the coagulation time is prolonged. However, platelets are being constantly destroyed in the body and the products that effect coagulation are being dissolved in the tissue juices, so that when one pricks the ear, the blood becomes mixed with the products of the platelets to such an extent that coagulation occurs, and the bleeding time is not prolonged.

I think it is very important to observe more than merely the coagulation time and also to take care to perform the tests with accuracy. Shaking, air bubbles, dust, admixture of tissue juices, all of course interfere with the coagulation, accelerating it if anything. Consequently, the tube in which one is determining the coagulation time should be handled as little as possible, and it is desirable to have three tubes of uniform diameter, the first two of which may be tilted to obtain an approximate idea of the coagulation time, and the third tube tilted only once, at the end point. Of course, the extent of the surface of blood which is exposed to the vessel determines also to some extent the coagulation time, so that it is important to use constantly tubes of the same diameter. We use tubes of the size recommended by Lee and Minot, and these tubes are eight millimeters in diameter. After the blood has clotted, further observations of the clot are very important. The clot should be incubated (it may be carried in one's vest pocket) for three hours and then observed. The normal clot retracts to a tough mass. In purpuras and other conditions where there is a paucity of platelets, the retraction is very poor and the clot itself may become digested. Apparently, it takes a certain number of platelets to institute clotting. The number present in excess of that minimum amount is utilized in retraction of the clot, so that observation of the quality of the clot gives one additional information as to the number of platelets present. In cases where the bleeding and coagulation times are normal, a well retracted clot is an indication that there are enough platelets to prevent spontaneous hemorrhage. It is very unfortunate that the counting of platelets is beset with so many difficulties that there is really no accurate method of determining the number of platelets However, it is possible by use of stained smears, as Dr. Larrabee has mentioned, to obtain a sufficiently accurate estimate of the number of platelets for ordinary diagnostic purposes.

In this connection I think it is important to obtain perfectly clean smears. If coagulation is begun before the smear is made, then, as pointed out by Lee, the platelets undergo certain changes tending to become fused in masses, so that in some parts of the field one will observe clumps of platelets and in other parts there will appear to be a paucity of platelets. Hence, unless the plates are evenly distributed, inspection of the smear does not give reliable results. Moreover, unless the smear is stained well, the platelets are apt not to stain and one is confused by objects which cannot be differentiated from artefacts. We have found it very convenient to use crystal violet for the staining of platelets. A drop of one per cent. aqueous solution of this dye is placed on a slide and allowed to dry. A drop of blood on a cover slip is then placed over that. Platelets are stained beautifully by this dye. As has been known for a long time, brilliant cresyl blue is a splendid stain for platelets, and, as shown by Hawes and recently further developed by Cunningham, it is possible to superimpose on these stains Wright's stain, and obtain beautiful preparations which show not only platelets but reticulated red cells and leucocytes. Such preparations will keep over a period of months. This procedure is so easy to carry out that I think it is worth doing as a routine in every case where an examination of the blood is to be made.

THE USE OF QUARTZ LIGHT IN DERMATOLOGY.

BY E. LAWRENCE OLIVER, M.D., BOSTON.

BEFORE speaking of the use of quartz light it seems best to explain in brief what this light is.

Sunlight passing through a prism is split into many rays, differing in color, wave length and in qualities, the visible rays forming the colors of the rainbow. Of these visible rays, the red have the longest wave length,—about one-half inch; the violet the shortest,—about one-quarter inch. Now, in addition to these visible rays there are at either end of the color spectrum enormous numbers of rays which are entirely invisible; those to the right of the red are known as infra red rays, while those to the left of the violet are called the ultra violet. Among the infra red rays are the Hertzian waves up to one thousand feet in length; it is these waves of light that are used in wireless telegraphy. To the left of the violet rays among the the ultra violet rays are the x-rays and the gamma rays of radium, the wave length of the latter being measured in quintillionths of an inch, a length totally inconceivable to the human mind.

Now when we consider that the rays of visible light vary in wave length only from about one-quarter to one-half an inch, while the shortest invisible rays have a wave length of a few quintillionths of an inch and the longest have wave lengths up to or beyond a thousand feet we begin to realize what an infinitesimal proportion of light is visible to us.

Physicists tell us that all these waves of light are electro magnetic vibrations, the colors and other properties of light depending entirely on the wave lengths of these vibrations.

As the red and infra red rays are hot, while the violet and ultra violet are cold, one might naturally infer that the red and infra red rays were the cause of sunburn, but strange as it may seem the opposite is the truth; it is the cold ultra violet light that causes sunburn. Proof of this lies in the fact that if we filter out the heat rays a sunburn can be produced, but if we filter out the cold rays leaving only the hot red and infra red rays of the sun, no sunburn occurs. A continuous flow of ice water can be maintained through the Kromayer lamp, so that when it is pressed against the skin it feels and is ice cold and yet a blistering "sunburn" may be produced with this lamp under these conditions by an exposure of thirty seconds.

Although a generation has passed since Finsen, pioneer in light therapy, demonstrated the therapeutic possibilities of actinic light, a wide use of his inventions has been out of the question, on account of the expense and complications of his apparatus. The minds of many, therefore turned toward the invention of simpler apparatus for the production of ultra violet light to take the place of Finsen light, in part at least, and to act as more or less efficient substitutes for natural sunlight. The iron arc light and the Uviol lamp were among the inventions in this field, that attained a certain measure of justified success.

In 1892 Arons discovered that an electric current passed through a vacuum tube containing a small amount of metallic mercury, produced a peculiar bluish light which contained no red or orange rays. Not long after Cooper Hewitt, an American engineer, patented a lamp, based on Arons' discovery and the Cooper Hewitt lamp has now proved of commercial value in lighting on account of its small consumption of electric current. Although this light is rich in ultra violet rays, these are almost entirely filtered out by the glass of the vacuum tube, but when Heraens succeeded in melting quartz crystals and in making the vacuum tubes of this material the start was made toward a simple, efficient and comparatively inexpensive source of utilizable ultra violet light, for the ultra violet rays readily pass through quartz.

Kromayer's improvements followed, and in 1913 the so-called Alpine sun lamp was designed by Bach, Brieger, Nagelschmidt and Hageman. The principle of the two lamps is the same, the light being obtained by passing an electric current through mercury vapor contained in a vacuum tube made of quartz. The Kromayer lamp is a small water cooled lamp, the Alpine sun lamp is air cooled and has a wider field of usefulness on account of the facility with which large areas may be treated by a single exposure.

Many students of natural heliotherapy, among them Rollier, perhaps the foremost in this field, believe that the beneficial results from general exposures to sunlight are in a large measure due to the tanning of the skin. If this be true, quartz light must be of considerable value as a substitute for natural sunlight for the tan produced by this light is in all respects identical with the tan caused by natural sunlight.

Freiberg of Cincinnati, in an article published in 1917,[1] came to the conclusion that the light from the Alpine sun lamp could not be considered even a fair substitute for natural sunlight. In his article he makes special reference to two cases of bone tuberculosis, both of which had shown marked improvement after general exposures to sunlight during the summer. Both cases became worse soon after the Alpine sun lamp was substituted for sunlight. Among other observations he also noted that the tan acquired by exposures to sunlight, began to fade and continued to fade during the period of quartz light exposures.

Now it has been abundantly proved that any amount of tan produced by sunlight can be not only retained but increased if desired by exposures to quartz light; it is purely a question of dosage. The fact that the tan faded in these cases is in itself proof that the exposures were too short. If the improvement during the period of natural heliotherapy was due in a large measure to the tan, and this is the inference one might draw from the article, it is reasonable to suppose that with larger doses of quartz light the tan would have been retained and the improvement would have continued. If one prescribed a half drop of tincture of digitalis three times a day for a patient suffering from dropsy of cardiac origin it would be hardly reasonable, if no benefit ensued, to conclude that digitalis was a drug of little or no value.

But whatever may be the comparative value of quartz light in the treatment of bone tuberculosis, in dermatological therapeutics this light is often vastly superior to natural sunlight. For example, in a recent case of chronic eczema of the palms, with marked thickening of the horny layer and great itching, the itching was relieved and definite visible improvement occurred within a week after a single exposure of ten minutes at a distance of eight inches from the source of light. I feel absolutely confident that natural sunlight would have had little or no effect in such a condition. Two subsequent similar cases tend to show that the improvement in the first case was not a coincidence.

Let us now consider some of the skin diseases in which this light is often of value.

Ulcers of Various Sorts. Most of these cases that I have treated with quartz light, about twenty-five in all, have been ulcers of the leg, of the varicose variety. Two of these cases had shown little or no improvement after a month's rest in bed combined with good local treatment of the usual sort. The ulcers in both of these cases began to heal rapidly soon after weekly quartz light treatments were instituted, complete healing taking place in less than two months in both instances and this with the patients "on their feet." The other cases have almost without exception shown improvement more rapid than one would expect from other methods of treatment. A striking feature in many of these cases is the firmness and thickness of the new epithelium; it is often hard to realize that it is in reality scar tissue, so closely does it resemble normal skin.

The dose that I like to give is that which will produce a decided erythema of the skin about the ulcer. The average initial exposure in my cases has been two minutes at a distance of ten inches from the source of light; the ulcer itself and a band of surrounding skin an inch wide being exposed, the skin beyond this being protected by gauze or paper. If the dose has been correctly gauged, and this is not always easy, a decided erythema appears the day following the exposure, this erythema lasting about a week, but causing little discomfort as a rule, in fact it is not infrequent that pain incident to the ulcer is greatly relieved. Most of the cases treated have had weekly exposures, as this has been found to produce the best results. It is probable that nothing is gained by more frequent exposures. I believe that in ulcers of the skin, especially those of a varicose type, ultra violet light will produce more rapid healing than can be obtained by any other known method of treatment.

Another skin affection often greatly benefited by quartz light is the flat vascular naevus, the so-called port wine mark. In these cases the Kromayer lamp is much superior to the Alpine sun lamp, for the Kromayer lamp can be pressed firmly against the skin, thereby pressing the blood out of the superficial vessels, allowing deeper penetration of the rays, which at best have but little penetrating power. Treated in this way with exposures of five to twenty minutes, improvement follows in the majority of these cases. Fifty per cent. improvement after a single treatment is not very unusual. Of sixteen successive cases of this type that I have treated in private practice the amount of improvement was "worth while" to the patients in all but two cases. These two were almost complete failures, both having dark skins highly resistant to light. It is quite possible that even in these cases, results could have been obtained if much larger doses had been used.

Port wine marks that fade on pressure, as a rule are by far the most amenable to this treatment, a fact which helps greatly in prognosis.

The desired reaction in these cases is a blistering burn of the area treated, for if such a reaction is not produced, little improvement can be looked for. Such a burn over a small area, 4 or 5 cm. in diameter, causes only slight discomfort, rarely enough to cause any loss of sleep. Furthermore, the treatment itself is absolutely painless and hence easy of application in children as well as adults.

A warning against the too free use of radium in port wine marks seems timely. Valuable as radium is in cancer of the skin its use in benign lesions, especially in children, should be attended with extreme caution, for a result that may seem almost perfect, one or even several years after the application of radium, may be deplorable ten years later, when the girl of eight has reached eighteen, the age at which she wishes to appear at her best. The changes in the skin induced by radium seem to go on forever; therefore, in every case, in children at least, we should look forward at least ten years rather than to the immediate results.

Another affection which often responds very favorably to quartz light is alopecia areata. Bald areas of long standing often show regrowth of hair after four or five exposures to this light at intervals of two to three weeks, the lasting active hyperemia induced seeming to give new life to the hair follicles. In senile or premature alopecia of the usual type, on the other hand, the value of quartz light is doubtful, and in these cases I do not feel justified in advocating its use.

In psoriasis, especially those cases showing a few chronic patches of the disease which have proved resistant to the usual methods of treatment, quartz light is often a great help. Here again the Kromayer lamp sometimes proves more efficacious than the Alpine sun lamp, though definitely good results may usually be obtained by either lamp. Relapses are the rule, however, as after other methods of treatment. Two cases of psoriasis of the nails, of long standing, have shown marked improvement after a few exposures.

Resistant patches of chronic eczema are frequently greatly benefited by quartz light. The itching can usually be greatly relieved and the thickened infiltrated skin may rapidly approach the normal in appearance.

In pruritus ani distinct benefit has been obtained in several of the writer's cases though relapses will very likely occur.

Severe cases of pustular acne vulgaris, where the lesions are large, respond well to quartz light and in selected cases it has proved its value beyond a doubt. In those cases of acne in which the skin is pale and oily, the active hyperemia induced by the rays usually lead to rapid improvement. It is, I believe, advisable only in selected cases of acne as the erythema produced, even though temporary, is often objected to by the patient.

Enough has been said to indicate the therapeutic possibilities of this light in dermatology. It has a wide field of usefulness. It should come into more general use.

It is not to be denied that the ultra violet rays of natural sunlight are capable of accomplishing much, as Towle[2] has demonstrated, but the sun is not always at our disposal and even when it is, it does not always have sufficient power to produce the desired reaction. Furthermore, it is a time consuming process at best, taking hours to produce effects that may be produced in minutes by the use of quartz light.

Ultra violet light produced by other artificial methods may also accomplish as much, but taking into account simplicity, ease of application, and results obtained, I believe that quartz light as produced by the Kromayer and the Alpine sun lamp is at the present time the most valuable form of ultra violet light used in dermatological therapeutics and that in this field it stands today as one of the most valuable discoveries of the twentieth century.

REFERENCES.

[1] Freiberg: Journal Orthopedic Surgery, 1917, Vol. xv, p. 625.
[2] Towle: Journal Cutaneous Diseases, 1915, Vol. xxxiii, p. 847.

DISCUSSION.

Dr. Loretta J. Cummins, Boston: Dr. Oliver has so fully covered the subject of the treatment of dermatological conditions with the quartz light that there is very little for me to say, but perhaps to emphasize some of the statements which he has made. In varicose ulcers I believe the quartz Alpine lamp is the ideal method of treatment. In the first place, there is almost immediate relief from pain, and the patient isn't handicapped by being obliged to give up work. He is able to be around and to attend to business, and the economic value of that is important. In the treatment of varicose ulcers I use the lamp alone, because I believe the lamp will do everything in the way of stimulating granulating tissue. In those cases I usually apply boric acid ointment so that the dressing may be more comfortable but not for the therapeutic use of the ointment. That is the only condition in which I could state that the lamp will do everything alone. I believe it is a very valuable aid in treating other conditions. Acne vulgaris, especially the type in which there are large papules and pustules with seborrhea and comedones, responds very readily to treatment with the Alpine lamp. In these cases I remove the blackheads and open the pustules and take into consideration the problems of hygiene and general health and give internal and external treatment, but I use the lamp and consider it a very valuable adjunct and believe that it shortens the course of the treatment. Of course, most of my patients are women and I find very few who have objected to the erythema which Dr. Oliver speaks of. I usually turn the patient's head to one side and cover the eye with a small pledget of cotton and if the erythema is even, the patients do not object to it because it lasts only a few days. At the end of a week peeling has begun and the result is so excellent the patients do not object to the treatment—that is my experience. One case in particular that I treated,—a woman who had acne for a great many years, of the papulo-pustular type,—had not responded to various ointments and washes and internal treatment; she had had vaccines also, and I had given her the best treatment that I knew and then I tried the lamp without anything else. I gave her three treatments at weekly intervals, and the process entirely disappeared. The lesions gradually subsided, and she has remained free from any acne lesion for over a year. That is the only case that I feel the lamp has done the work alone. I do not depend on it alone for the treatment of dermatological conditions except for varicose ulcers. In psoriasis and chronic eczema it helps to clear up the lesions simply because it stimulates absorption, I mean in the chronic, thickened, indurated forms of eczema. I have only begun to use it in the more acute conditions, so that I cannot really state that it does very much for those cases as yet, but I am getting to be much more daring, and use it wherever there is very much itching. In the acute eczemas where there is a great deal of itching and irritation, the lamp seems to have a soothing effect. In varicose ulcers one of the very valuable things in the treatment of the ulcer is that the pain is relieved immediately.

In alopecia I believe the lamp is valuable in treating men where there is a decided baldness, but in women I do not think the lamp does very much because the penetration is very feeble. In some of the post-influenza alopecias where the hair is very sparse, and in alopecia areata the lamp does aid because one can get a decided erythema, but unless one can see the scalp clearly, I do not believe the lamp does much good, because the penetration is so feeble. Seborrhea, either of the scalp or of the face, responds very readily to lamp treatment. If one wants to use it in women, it means a much longer course of treatment because their hair has to be parted every inch or half-inch and it means a long process; but where the hair is thin it works excellently.

One advantage in using the Alpine lamp is that there is no danger to it, and in any case where stimulation is required one can get it very readily from the lamp, and there is no danger of scarring or of giving an overdose. I think the tendency has been rather to give too small a dose than to give too much. The only thing that one can do is to cause a severe sunburn, but there never is any danger of destruction of tissue or any harmful effect from it. Occasionally patients will complain of headache for a short time, but usually that is due to poor ventilation in the room. In pruritus, the same as in eczema, there is marked relief from itching following the lamp treatments.

DR. HARVEY P. TOWLE, Boston: You have heard what the lamp will do, therefore it is not necessary for me to repeat that. We understand as yet very little about the physiological effects of light upon tissues. It is not a new subject, however. I believe that Herodotus mentions the fact that heliotherapy is good for certain ills of man. Certainly that is rather old. Finsen was the first to make a real study of the application of light to therapeutic uses. As you know, in the treatment of tuberculosis the Finsen lamp has done remarkable things. It needs a large equipment, both physical and personal, and therefore it has not come into common use because of the difficulties attendant upon its use. It requires a number of attendants and the apparatus is complicated and expensive.

Sunlight contains all the rays, as you know, from the infra reds through the reds to the violets. In the x-rays we have the ultra violets, and we have some of the other more penetrating rays. In certain fluorescent substances we get deep penetration. There we get the deep penetrating infra reds and infra greens. It is of passing interest, however, to know that certain men have used those penetrating rays as carriers of the less deeply penetrating; for instance, take fluorescin—they have used that in conjunction with the x-ray on the theory that the deep rays would carry the ultra violet with them, and the effects have shown that that is true.

To sum things up: Light has certain local actions varying somewhat according to its use, whether it is applied locally or generally. In all forms of light therapy there is a certain sense of increased well being. I well remember in the early days of the x-ray how the patients exposed for some growth on the arm or head, universally reported that they felt better after the exposure. In other forms of light that is true also. In the various lamps which are used as substitutes for general heliotherapy there is always a production of ozone. That is to my mind the reason why they also say that they feel somewhat exhilarated. In fact, some writers lay great stress on that feeling of exhilaration. Rollier paraphrased a well-known remark by saying, that "man does not live by bread alone, he must also have light." His theory was that the pigment cells in the skin act as reservoirs. When exposed to light they store up somehow through chemical change the light rays and thereafter through the day they gave off through these reservoirs minute quantities of the light stored up. There probably is something in that. We have, of course, always advocated the exposure to light in the treatment of a great many diseases without stopping to analyze our reasons. In the local effects of these rays we get a stimulation of tissue growth. We also get a stimulation of resorption. To apply that to the quartz lamp we see how it works out. One of the star performances of this quartz lamp is in chronic ulcers. It does not seem to matter greatly whether it is an old chronic ulcer due to some septic process, chronic sepsis, or to a varicose ulcer of long duration. Pathologically speaking, anatomically speaking, the results are very much the same in that condition, and therapeutically speaking, the results are very much alike. We find first resorption and we find hyperemia through the dilatation of the vessels in the part. We find increased cellular growth with development of blood vessels and new granulation tissue. That, of course, determines an increase of blood to the part. We find a resorption as well as absorption, and it is very interesting in these ulcer cases to watch that growth taking place; first, the congestion of the part—you can watch it in the cells growing brilliantly red and staying red, and then the gray film begins to grow; next there is an island of epithelium and that grows a good deal like a Thiersch graft. Then the hard edge sharpens down, and the epithelial cells push their way through this granulation tissue. Finally we get a good firm tissue.

At the Massachusetts General Hospital, where I have watched Dr. Oliver's experiments, it has been a pleasure to see how quickly and firmly this healing takes place.

In the other forms of diseases where we have not what I may term that contrast, but the dry, hard, non-succulent ridges such as we find in thickened palms, we get a somewhat different clinical result. There we get absorption and a throwing off of the old tissue and a replacement with new cells and a pliable skin.

I have seen very little use made of the quartz lamp for general exposures. How well it will work out in tuberculosis, for example, I am not at all certain. About the use of heliotherapy in tuberculosis, that is, by means of exposures—I have no doubt the beneficial result is not from its local action there but from its general. Whether or no this strained light, this pure ultra violet light will work out in the same way, I am not certain. I am not confident that the tanning alone is the *sine qua non.* I think there is more to it than that.

Another striking feature and one which is interesting in the use of these lamps, particularly the quartz lamp, is its use in exudative affections. We have had recently at the Massachusetts General Hospital two or three remarkably intractable cases of dermatitis herpetiformis. That is a disease which is characterized by little clusters of blisters all over the body. It is a vasomotor phenomenon, persistingly chronic and sometimes of very serious importance as far as life is concerned in the end. One case we had sent up to Dr. Oliver for an exposure with this light. The man by mistake was given an overdose. He came back to the ward with a most beautiful sunburn, with enormous red blebs, so that the skin hung in folds. He did not sleep for two nights, but when he dried up, his skin was as clear as when he was born; every trace of vesiculation had vanished.

The question of the permanency of the results is another story. We cannot say what the permanency is. It will take time. Also the value of these results—they will come out in time, of course. We are after certain physical effects all the time, and this is another means of getting those physical effects. It is not just settled what place in our therapeutic armamentarium this lamp will take.

In response to a question as to what effect these lamps will have on acute infections, as boils or carbuncles, Dr. E. Lawrence Oliver said: I have not used this light to any extent in boils and carbuncles. In one case in which I used it, I think it hastened resolution. I recently saw a man who had x-ray treatment for a boil and an x-ray burn was produced. I think this may have helped the condition, but I think the same result might have been obtained with the Alpine sun lamp without danger of telangiectases later. I do not think in most cases of individual boils it is necessary to use anything in the way of light treatment. If I did, I would use it with confidence, but I do not think it would prevent the formation of new boils, indeed I think the desquamation by removing the horny layer of the skin is likely to lessen the mechanical resistance of the skin to infection, tending to increase the likelihood of new boils. Consequently I do not advocate it except in selected cases. I think the ulcers resulting from carbuncles might be benefited by this light, by shortening the time of healing.

Observations upon Ductless Gland Therapy.

By Charles H. Lawrence, M.D., Boston.

In an article on pituitary disease, Cushing[1] makes the following statement in regard to derangements of the endocrine glands: "With a full appreciation of the close physiologic correlation of the structures, ..., and consequently of the polyglandular character of the syndrome aroused by a profound disorder of any individual number of the series, nevertheless there can be no doubt that there exists a characteristic and recognizable syndrome for a primary derangement of each individual gland, whether on the side of its secretory overactivity or its underactivity."

"Furthermore, transition conditions are to be expected, and . . . . we may anticipate clinical combinations of opposed states, the one due to a perversion or excess of secretion, and the other to a diminution or loss of secretion."

This statement forms, it seems to me, a safe and encouraging basis for the use of glandular extracts in the treatment of disease, and it is my intention in this paper to develop more fully the principles enunciated in its text.

What forms of endocrine dysfunction are susceptible of successful treatment by organotherapy? Those conditions which are more definitely associated in our minds with disease of the glands of internal secretion,—Addison's disease, exophthalmic goitre, acromegaly, etc.,—are the final expressions of disease processes. They represent what MacKenzie[2] calls the advanced stage of disease, "when it has progressed so far that it has caused destruction or modification of tissue, and when its presence is revealed by a physical sign." Such conditions, being associated with destruction or modification of tissue, offer little chance of cure, and if organotherapy is to give its best results, it must be employed during an earlier stage of glandular dysfunction.

This stage, to quote MacKenzie[2] again, "when the disease has entered the human system but has not produced any perceptible alteration of tissue, when the signs the disease produces are mainly subjective—this is the curable stage." But this is also the indefinite stage, during which the subjective symptoms seem of little value, during which opposed activities of various glands obscure the picture, making it so difficult to pick out the "characteristic and recognizable syndrome" which must determine what glandular extracts are to be used in treatment, if treatment is to be effective, and if our knowledge is to be increased by our experience.

Because of the indefinite character of the disease picture during this curable stage, physicians have often succumbed to one or two temptations, with the result that our knowledge concerning glandular therapy has progressed slowly and gropingly. The first temptation is to regard the early stages of endocrine dysfunction as neurasthenia. When a patient complains of easy fatiguability, apathy, headache, poor sleep or obstinate insomnia, depression, abnormal irritability, vertigo, faint attacks, or dyspnoea on slight exertion, the diagnosis of "nerves" seems established. Yet these symptoms, according to Falta[3] are all characteristic of Addison's disease in its early stages, and many of them occur also in cases of hyperthyroidism. It should also be remembered, therefore, that neurasthenia may be due to dysfunction of a gland having an internal secretion. Even then, the proper basis for treatment has not been reached. The symptoms may be due to trouble with one or more of several glands, and it is extremely difficult to decide which is at fault. Here arises the second temptation—to use a polyglandular preparation, on the principle that two or three chances are better than one. This method of treatment may, it is true, bring relief to the patient, but it in no way advances our ability to identify the gland at fault, and is therefore to be condemned. If we are to increase our ability to determine what glandular dysfunction is responsible for a given syndrome, it must be done by administering one glandular extract at a time, and carefully noting its effect. If no single extract prove efficient, then combinations may logically be tried according to the individual indications. By such a method, our knowledge of the characteristic syndrome of each endocrine dysfunction is gradually increased, whereas the use of ready-made polyglandular extracts sheds no light on the question as to which gland was at fault.

How are we to arrive at an intelligent choice of the preparation which is most likely to give beneficial results in any given case? First of all, by careful elimination of disease of other organs. Incipient tuberculosis, early carcinoma, anemia or leukemia may be overlooked unless careful examination is made with such possibilities in mind. Second, by a careful history. The physical examination will, in the majority of cases, reveal no cardinal sign in the early stages of endocrine dysfunction; the diagnosis depends, for positive evidence, upon the story. The characteristic feature in the history is usually a lack of normal balance—either easy general fatiguability, increased or decreased nervous irritability, deficient muscular strength, vasomotor instability, or altered metabolism. There is often a story of preceding infection or nervous strain. Such a history, in connection with a physical examination, which rules out other diseases, strongly suggests that there is disturbed function of some internal secretion. Usually if enough pains have been spent in obtaining it, the history does still more. It presents, often obscured by other symptoms, but nevertheless available, the "characteristic and recognizable syndrome" which indicates the particular gland involved.

In these days of predominance of the laboratory and dependence upon tests performed there, history taking bids fair to become a lost art. But in the early stages of any disease, the history gives more valuable evidence than any other method of examination. Physical examination will exclude organic disease, and laboratory tests are extremely useful in determining the degree of abnormal function, but the history, if the symptoms are properly elicited and valued, not only discloses the nature of the derangement present, but gives a measure of its effect upon the patient. If properly analyzed, the evidence it affords is not indefinite, but affords, especially in the case of the internal secretions, a definite basis for differential diagnosis. For example, the characteristic expression of thyroid function is through the nervous system. Numerous and varied as the symptoms of thyroid derangement are, they are expressions of altered irritability of the nervous system, especially the vegetative division. Therefore the patient with slight malfunction of the thyroid complains of symptoms which are referable to disorder of the nervous system primarily. Such symptoms are also connected with disturbances of other glands, but do not occupy so prominent a position in the picture. A history of the character indicated accuses the thyroid gland. An increase in the basophiles in the blood, a pathological response to the Goetsch test, and an abnormal basal metabolism make suspicion a certainty, and no attempt should be made to treat the patient without having the aid of as many of these tests as are available.

The basal metabolism test deserves special mention as a method of detecting thyroid derangement. It involves no particular discomfort and only moderate expense to the patient. It requires little time, it is becoming available to the general practitioner, and its use gives a definite statement of the activity of the thyroid. It seems possible that tests of the activity of other glands might be evolved were sufficient attention given to the matter. Such tests would be of enormous value, since they would make it possible to determine the symptom complex of each glandular derangement.

Contrasted with the neurological tinge which dysfunction of the thyroid gives to the history, disorders of the adrenals are characteristically expressed in alterations of ability to mobilize energy. Thus hypoadrenalism is associated with weakness of both voluntary and involuntary muscle. This condition appears in the history as easy fatiguability, loss of muscular power, circulatory disturbances and the like, but the altered nervous and psychic reactions are not present in any striking degree. Laboratory tests often disclose anemia and hypoglycaemia, but there is no test of adrenal function which gives such valuable results as does the estimation of basal metabolism in thyroid derangements.

In searching for the characteristic syndrome of ovarian dysfunction, the influence of the gland upon the blood flow suggests that its most dominant activity (if its influence on sex characteristics be excepted) is related to the circulation. The phenomenon of catamenia is the most striking evidence of normal ovarian activity, and the symptoms caused by abnormal activity are logically found to express themselves in disturbances of the circulation. Flushing, headache, variable blood pressure, or similar evidences of unstable circulatory equilibrium are the most common and the most important symptoms of ovarian dysfunction (See Graves[4]).

It is true that with ovarian dysfunction there is usually more or less nervous irritability or depression, but it is, I believe, secondary to, and dependent on the circulatory instability. Further, the knowledge, or even suspicion, that the ovaries are not normal, is sufficient cause for nervous symptoms in any woman, since she has an inherited dread of such a condition. The nervous symptoms in thyroid derangement are, in contrast, without demonstrable basis until the improper function of that gland has been demonstrated. The tendency to adiposity, and abnormality of sex characteristics are not symptoms of early stages of ovarian dysfunction but end results. Their presence confirms the diagnosis at times, but their absence does not detract from its probability, in the early stages.

Disorders of the pituitary body cause a most complex picture, since the structure is really two glands, having separate functions. There may exist over or under-activity of either part separately, or both parts together, or overactivity of one lobe and simultaneous underactivity of the other.[1] It is not possible always to decide which of these possibilities is present, one must be content at first with the diagnosis of disturbed pituitary activity. The characteristic symptom of such a condition is, I believe, derived from a function of the pituitary found in its full development only in certain animals. Bell[5] and others have pointed out that the pituitary apparently controls hibernation in such animals as possess the habit. In those cases of early pituitary dysfunction which I have been able to observe carefully, symptoms were present which suggested in a mild degree the phenomena of hibernation. Abnormal desire to sleep, occurring without previous lack; aversion to effort, without weakness; and deranged carbohydrate metabolism, are the most constant symptoms of early dyspituitarism. The first two symptoms will appear among a host of others in a carefully taken history, the last can be detected often by slight traces of sugar in the urine or by determining the carbohydrate tolerance. Roentgenograms of the sella turcica will be helpful, usually, if headache be present, but they may often show nothing abnormal. The long bones may show suggestive abnormality of ossification.

There are doubtless characteristic symptoms of the other endocrine disturbances, for example, tetany in hypoparathyroidism, but they have not yet been identified in the confusing syndrome of which they form a part. It is not necessary to enumerate them here—sufficient evidence has been cited to show that every glandular derangement has its typical symptoms. The great difficulty lies in their identification. I do not wish to give the impression that I believe this is usually easy, or that the symptoms which I have described are the most prominent in the picture. Often the reverse is true—the patient lays much more stress on some symptom which suggests endocrine dysfunction in general, but does not point toward any particular gland. It is only by careful questioning, and careful evaluation of the symptom elicited, that the syndrome characteristic of the primary condition is obtained. I wish to emphasize the fact, however, that if treatment is to be anything but haphazard, such a syndrome must be identified in the history. If it is not, there is no logical indication for glandular therapy.

The following case will illustrate the point: The patient, a trained nurse, 37 years old, was referred to me in June, 1919. Her record states that since the age of 13 she has had frequent attacks of what she called "hay fever," manifested by coryza and irritation of the pharynx and larynx. For the past three years asthma has been added. The attacks are more frequent in winter than summer. Cutaneous tests have been made, and these showed negative reactions to all the pollens, but positive reactions to milk, meats, several kinds of fish, many vegetables, chocolate and coffee. Omitting these articles from the diet eliminated the asthma, but the patient cannot maintain her weight. She was referred to me purely on this account. There is no family history of asthma. Her respiratory tract has been examined and treated without benefit. Her teeth have been searched and found guiltless. The picture seemed one of anaphylaxis—due to improper metabolism of many articles of diet. Careful questioning brought out the following additional facts: For many years the patient has been bothered by extreme sleepiness. This was not due, she thinks, to fatigue, as the desire for sleep might come on any time, anywhere, irrespective of the amount of rest she may have have had. At about the age of 16, she had grown tall very rapidly. She had never felt weak, and was not nervously irritable. There was nothing remarkable about the catamenia.

Physical examination showed no organic disease. The patient was tall and rather thin, weighing 118 pounds. The skin was smooth, nails thin and brittle. Hair dry and rather scant. Blood pressure normal.

Examination of the blood showed nothing abnormal. The urine, however, showed a very faint trace of sugar by Benedict's test.

Tucked away in the picture were several small points which were highly suggestive of pituitary dysfunction. The somnolence, the rapid growth to a height above average and the unstable metabolism as evidenced by the cutaneous tests and the slight glycosuria suggested that the pituitary might have some causal relation to the other atypical but more prominent symptoms.

The patient was given whole pituitary substance in small amounts, and advised to eat all kinds of food. Since that time she has had no anaphylactic symptoms as long as she takes the glandular extract. She is eating a general diet. She has gained seventeen pounds. Omission of the pituitary substance is always followed, within forty-eight hours, by return of the anaphylactic symptoms.

The instructive points in the case are that it illustrates the fact that the characteristic symptoms of the glandular derangement were not those for which the patient sought relief, and that the exact nature of the derangement is not now clear. There was nothing suggesting acromegaly, and no adiposity. The classical signs of the later stages of the glandular disease are usually not present in the early periods. And finally, the case illustrates the method of deciding which glandular extract is to be tried first in any given case.

The selection of the proper glandular preparation is probably the most important point in insuring success in the treatment of endocrine derangements, but there are other factors which, if neglected, will postpone or vitiate results of treatment. Most of these early glandular derangements are sequellae of infections or prolonged overstrain. Therefore rest is an important part of the treatment, and is sometimes sufficient to reëstablish normal glandular activity, without other measures. It must, however, be real rest, physical and mental. The diet, of course, should be as attractive and varied as possible, and should contain a sufficient amount of protein to aid in tissue repair. The glandular extract should be administered at first in small doses, and the patient must be closely watched until the possibility of untoward effects is eliminated. All these conditions can be most easily and efficiently fulfilled by having the patient in a hospital for a short time when treatment is begun.

When the patient's tolerance for the preparation is established, the dose should be increased until some effect, either good or bad, is noted. The proper dose in any case is the same as that of any other drug—enough to give results. If the small dose is tried first, and the patient watched closely, serious untoward effects are not likely. If adequate amounts of the preparation produce no results, there are two courses to pursue: First, it must be demonstrated that the preparation employed is active. The potency of the glandular extracts in the market varies enormously according to the manufacturer and, probably, the age of the preparation when dispensed. Therefore, if results are not obtained with any given preparation, it should be remembered that it may be nearly, or quite, inert. Second, if the preparation is found to be active, then the extract of another gland should be tried, choosing the one which stands second in the list of probabilities. Then if no single glandular extract proves beneficial, it becomes logical and reasonable to employ combinations of synergistic extracts. Such combinations should be made as the symptoms warrant. Ready-made combinations during the experimental stage of the treatment are objectionable for two reasons: It cannot be determined which element gives the results, and the amount of one element cannot be varied without a similar variation of each of the others. When the proper combination of elements has been determined, there is no objection to putting them all into one preparation, but the use of ready-made combinations before this point hinders progress in glandular therapy.

Concerning the use of each glandular preparation there is little definitely established knowledge. It is generally believed that high blood pressure contraindicates the use of the extract of the posterior lobe of the pituitary. Certainly, under such conditions it should be given only if the need is great, and then the first dose should be very small. Given by mouth, the effect is much less than when given intramuscularly. Subcutaneous injections are likely to cause sloughs. A decompensated heart or respiratory failure is regarded by Bell[5] as absolute contraindications to its use.

Concerning adrenalin, there is a general belief that oral administration is useless, since the substance is destroyed in the stomach. This has been demonstrated beyond reasonable doubt in normal subjects. I am not sure that it holds true in individuals suffering from lack of adrenal secretion. The few cases of this condition which I have treated seem to have been benefited by full doses of adrenal substance by mouth. Harrower[6] has suggested that when the patient is suffering from lack of a secretion there exists what he terms "hormone hunger," in which condition the needed substance is assimilated more rapidly and thoroughly than under normal conditions. At all events, it is worth while trying the effect of oral administration, when hypoadrenalism exists. If rapid results are demanded it should be given subcutaneously.

The other two glandular preparations in general use, thyroid and ovarian extract, have no absolute contraindications. I believe thyroid especially, however, should be given cautiously until its effect is demonstrated. The use of other glandular extracts, and the use of antagonistic extracts, are still so imperfectly understood that I shall not attempt to discuss the subject. Nor does the use of these substances in obstetrics or surgery fall within the scope of this paper.

In conclusion, I believe:

That the symptoms of the early stages of disordered endocrine function are at present not well understood, and therefore often overlooked.

That though the symptoms of such conditions are often polyglandular in character, there exists a "characteristic and recognizable syndrome for a primary derangement of each individual gland."

That the recognition of the syndrome is essential for intelligent glandular therapy.

And that while the characteristic syndromes described in this paper may have to be revised in the light of more knowledge, they do offer a working basis for the treatment of derangements of internal secretion.

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DISCUSSION.

Dr. M. J. Konikow, Roxbury: I would like to ask Dr. Lawrence if there are any preparations in the market to which he particularly refers. There are so many of them that one is at a loss to know which to use. Which ones does he suggest?

Dr. Charles H. Lawrence, Boston: I have always found the Burroughs, Wellcome preparations satisfactory. In the case of the pituitary my obstetrical friends tell me that they think it has a much more powerful effect on the uterine contractions than any other preparations they can get. I have used these preparations exclusively because they have answered satisfactorily the call for an accurate preparation. It isn't fair for me to say that none of the other preparations is good because I have not tried them out, but I can state that these preparations are satisfactory and they give satisfactory results if the indications for them are there.

Observations upon Various Types of Diabetics under the Present Method of Treatment.

By F. Gorham Brigham, M.D., Boston.

It is now six years since Dr. Allen read his preliminary paper in Boston, which revolutionized the treatment of diabetes mellitus. Although this brief time is in no way sufficient to draw final conclusions, yet from the results obtained, on account of the large number of cases available for study in the various clinics here in Boston, there has accumulated a large amount of interesting data which has been carefully reviewed and is well worth recording.

STATISTICS.

Statistics are always interesting, but in a disease like diabetes statistical data can be based only on dead cases, and, as I said before, with only six years' material available it is not yet time to draw any final conclusions. On the other hand from mere observation of cases seen and followed, it is certain that in the severe types and in children, life has been very much prolonged, and that in the mild cases represented by the obese, the arteriosclerotic, and the nephritic, not only is life much prolonged but the serious complications of the disease, such as cataracts, gangrene, rapidly advancing arteriosclerosis, and the distressing symptom of tabes, arthritis, neuritis, and pruritis have been very much reduced.

A very interesting and striking bit of statistical data is the figures as to the mortality of cases admitted to the Massachusetts General Hospital. From 1914 to 1920 there have been admitted to the main hospital 628 cases of diabetes and the death rate of these has fallen from 28% in 1913 to 5% in 1919. In private practice this figure was even lower, it being 2% in an even larger series of cases. The above figures and the rapidly falling admission death rate represent the result since the introduction of the newer methods of treating this disease.

Boston has been fortunate in having several large diabetic clinics, and some very interesting observations which will be of statistical value in the future have been made. Probably the largest clinic is that in the Out-Patient Department of the Massachusetts General Hospital. Since the clinic was started in 1914, there have been admitted over 600 cases exclusive of those in 1920, of which over 400 new and old have been seen since June, 1919, when the regular work of the clinic was started again. Previous to 1914, only 1,939 cases of so-called diabetes had been admitted to the Out-Patient Department since its very beginning, so that the figure of over 600 shows what a large number of cases are coming under observation.

The clinics at the City Hospital, the Brigham Hospital, and the Boston Dispensary also have a surprisingly large number of diabetic patients. With these large groups available, together with many hundreds more in private practice, it is hoped that in the next few years an opportunity will be offered to get together and compile some very interesting data. Nevertheless, from the handling of this large number of cases very definite practical working ideas have been formed and interesting observations upon various types of diabetics under the present methods of study and treatment have been made.

LABORATORY DATA.

Probably the greatest one help we have today in classifying and treating carefully this disease is the new methods of blood analysis as well as the simplification of other routine quantitative methods of analyzing the urine and the CO_2 content of the air exhaled from the alveolar spaces of the lungs. The present accurate methods simplified during the past few years for detecting the amount of sugar, nitrogen, and fat, as well as acetone and carbon dioxide in the blood enable us more accurately to estimate the severity of the disease when first seen; and also allow us to treat them more carefully by the data which are thus obtained. The routine analysis of the blood, quantitatively, for sugar, nitrogen, and fat, and in acidosis for CO_2 give very definite evidence as to the type of treatment to follow, and by checking up these analyses routinely, more often in hospitals than outside, and thus saving time, the results of the treatment are kept account of and trouble often averted.

Of as much importance as the blood work is the study of the kidney function. The large majority of the diabetics past forty have as a rule considerable arteriosclerosis with more or less impairment of kidney function. In this type of case, by lifting the load of the kidney as far as protein and salt are concerned, a very liberal diet in carbohydrate can be given, and no sugar increase in the blood or appearance in the urine develop.

From observation it seems that of all the diseases where these chemical methods have been introduced as part of the handling of the disease the most satisfactory and accurate results have been obtained with diabetes. Chart after chart of these cases shows definitely where with the inability to handle fat, and in increasing blood fat or lipaemia, the ability to handle carbohydrate decreases and the blood sugar goes up. This blood fat estimation does not need to be done very often as is shown from reviewing over 200 analyses, but it is of help in the cases described above and until the fat content of the blood is reduced no progress in increasing a sugar tolerance is possible. The old method of treatment with high fat in the diet has undoubtedly killed more diabetics than it has helped, and to date there is no way of recognizing a lipaemia without this analysis. A high blood fat is most often found in the more severe type of case.

Again in the arteriosclerotic and nephritic type of case with a high non-protein nitrogen in the blood and a low phenolphthalein test, it is impossible to make them sugar free and keep them sugar free with this ingredient of the blood high. It is striking to see the phenolphthalein test rise in percentage, the urine concentrate, the blood pressure fall with the fall of the blood sugar, and the increasing tolerance for carbohydrate as this nitrogen content of the blood is reduced. There are many cases of this type where at first the kidney seems impaired as to function, and who during the initial treatment are unable to handle protein food. Even on a low protein diet these cases eliminate a tremendous amount of nitrogen in the urine, and their blood nitrogen is high, but they finally readjust, and as their kidney function improves and blood nitrogen gets lower they are able eventually to handle more protein food; as is the case with most of the severe young diabetics.

In the obese, the arteriosclerotic, and the mild nephritic type of case with sugar in the urine, it is by the blood examinations alone that we treat and guide them, and not by the presence or absence of sugar in the urine. For with high blood figures, the damaging complications of diabetes can develop and progress just as rapidly as if sugar were in the urine and also there is a very low resistance of these patients against any type of infection, with their blood sugar high.

These facts have been vividly demonstrated in the Out-Patient Diabetic Clinic at the Massachusetts General Hospital. Before the war blood-work was not being done in this clinic, but since June, 1919, careful blood analyses on several hundred cases have been done. Whereas a large group of the cases mentioned above returned, having had no sugar for 18 months or more, they divided themselves into two classes as a result of the blood examinations; those who had done well and developed no complications, and those who had done poorly and developed gangrene, cataracts, a more extensive nephritis, and extreme arteriosclerotic changes with tabes and other distressing symptoms.

The only evidence obtainable to explain this condition was the normal and abnormal blood findings. This fact is much more striking in private practice where the follow-up system of checking patients has shown remarkable results. Of course a lot of laboratory work has been done, the worth of which has yet to be proved. New ideas are constantly developing as data accumulate but it is certain that with some of these tests, the value of which has been proved, and the using of these methods with care and thought, and not in a routine way only, we work with considerable more confidence than before when we had only the urine examination to serve as our guide.

The day of starving a high blood pressure case who has good kidney function and can handle protein food without any retention, and neglecting to pay any attention to his salt metabolism when it, and it alone, is proved to be the cause of symptoms, has passed.

Another laboratory method of questionable value in diabetic cases is the so-called "sugar tolerance test," in which certain definite amounts of glucose and water, depending on the weight of the patient, is ingested, and the blood taken before and at stated intervals afterwards. Striking curves are observed and in questionable cases where a trace of sugar has been found and yet normal blood curves are observed, one treats them very much less radically than if a definite and persistent rise in their blood sugar curve is found. This test is of value in the early Graves' disease and disturbances of the pituitary gland.

By taking careful histories and studying all patients with sugar in the urine along the lines outlined above, it is possible to place each case into a so-called class or group.

CLASSIFICATION.

There is no accepted grouping of cases by all the workers in diabetes. By far the smaller number of cases are the so-called "true diabetics," represented by the child, the young adult, or the thin individual in middle life or even early old age in whom one finds all the cardinal symptoms and signs such as polyuria, polydipsia, polyphagia, with loss of weight and strength.

The second group of cases, a small portion, is represented by those with low sugar tolerance, often seen in the candy factory girl or the consumer of large amounts of concentrated carbohydrate food, and who has no true diabetic symptoms, but in whose urine sugar in large amounts is found in the course of an examination for debility, anemia, and possibly some loss of weight. Their blood findings are usually normal, but if such cases are neglected or overlooked they develop into true diabetics of the first group. Usually a sensible rearrangement of their diet straightens them out, but they should be kept under observation.

The third group is represented by the obese patients usually seen between the ages of 30 to 50, all giving a history of having almost doubled their weight, the men usually after getting married, and the women following their first baby, or at the menopause. The prognosis of these cases depends on how early they are diagnosed, but most of them by being treated conservatively for their obesity, rapidly clear up and seem to have an almost unlimited tolerance for carbohydrate when once they have reached their normal weight. It is in this group, especially among the men, that the blood sugar figures are quite low, but the blood nitrogen is quite high with a normal phenolphthalein test and a normal blood pressure. The restriction of protein food with a reduction of the blood nitrogen may straighten them out without any carbohydrate restriction at all. The "tolerance test" also helps. We do not know much about this type of case but certainly it seems as though the internal secretions had something to do with their development, but possibly overweight and overuse of the pancreatic function is alone responsible for this trouble.

A small group of cases appear during pregnancy, in thyroid diseases, and other endocrine conditions, and those with a positive Wassermann. The presence of sugar in the urine of a pregnant woman is variably stated by obstetricians and other writers to be found in from 10% to 40%. Pregnancy occurring in a diabetic is more serious than when the diabetes develops during pregnancy. This condition usually starts in the second or third month, when the breasts begin to develop rapidly. From the slightest test for sugar which does not ferment with yeast, up to 6% to 8% of sugar with all the symptoms of true diabetes may be found. The earlier recognized and treated the better the results. They all show an increased tolerance as term approaches, due to the help from the baby; but after delivery must be carefully watched and treated; for with the birth of the baby the tolerance often falls considerably, and grave complications, even acidosis and death, may result. These patients must also be carefully followed for months after delivery, for if neglected, a true diabetes may develop. From observing many of them, there certainly seems to be an underlying factor which has not yet been determined.

The thyroid and endocrine cases usually present other symptoms and physical findings which allow them to be diagnosed. They always show only small amounts of sugar in the urine, and do show a slight increase in the blood sugar, and with the tolerance test we get a rather striking curve. Their treatment is for the underlying cause.

The cases with positive Wassermanns, representing about 2% or 3%, although presenting large amounts of sugar in the urine, with high blood findings, usually are not as sick as one would expect. With proper antisyphilitic treatment they improve with much greater strides and more satisfactory results than those cases representing the same initial picture but with a negative Wassermann. One very mild case of this group recently had a pneumonia and rapidly became a very severe diabetic.

This brings us to the last group of cases, by far the largest, represented by the arteriosclerotic and those with kidney impairment or circulatory trouble. These may be purely cardiac, cardiorenal, renal, or a general sclerotic condition without much evidence of kidney impairment, but who undoubtedly make their sugar from excessive protein food. These patients are always most interesting, and just as careful study of the kidney function and the condition of the heart is necessary as the study of their sugar metabolism. As said above, it is most striking in these cases with high blood sugar and nitrogen, with low renal function and low specific gravity, with polyuria and high blood pressure, to see the phenolphthalein test rise in percentage, the urine concentrate, the blood pressure fal with a fall of blood sugar and an increasing tolerance for carbohydrate, as the nitrogen content of the blood falls. The treatment of the heart often helps, and the giving of digitalis and planning a cardiac routine may often increase a patient's carbohydrate tolerance considerably. On account of the frequency with which these patients have difficulty in handling salt, this factor of the diet must be borne in mind, and the intake controlled, especially where there is extreme high blood pressure. A sudden gain in weight can often be due to the retention of sodium chloride.

There is still another group which is most difficult to classify. These are represented by healthy appearing individuals who have considerable sugar in the urine, a moderate elevation in the blood sugar, but have no particular symptoms, no loss of weight, and who give a history of the disease for years without any apparent harm resulting. If treated as the others are, one can often do them more harm than good, but they should be studied but never overtreated. It is wise to consider all patients showing sugar in the urine as diabetics until proven otherwise.

TREATMENT.

The present treatment of all diabetics today is more or less based on Dr. Allen's ideas, *viz.*, starvation or fasting. It is the result of his work which makes it possible to make and keep these patients sugar free. As time goes on various modifications have developed, for there are a great many cases, in fact a large percentage who do not need to undergo strenuous fasting with loss of weight and strength to accomplish their sugar-freedom. It is better to have the patients under observation for a longer period of time and maintain strength, than to put them through a too severe initial fast. It is often hard to convince a patient that he is better after losing considerable weight and appreciable loss of strength.

When there is severe acidosis, rigid starvation often seems to do harm, but there are certain cases who respond beautifully to this method of treatment. Complete laboratory data at the start give the key as to how to treat each individual case. The most practical and satisfactory method of treating all classes of diabetics is along the lines described and taught by Dr. E. P. Joslin. To get good and consistently lasting results from treatment the first and most important requisite is a thorough study of the individual case; next the education of the patient in the knowledge of diets, food values, and urinalysis; and lastly a following-up system which keeps the patient under observation and supervision without necessarily keeping the disease constantly before his mind.

Another very important part in the treatment of diabetics is not to be constantly increasing the diet. During the initial treatment their tolerance for carbohydrate, protein, and fat is found, and a total number of calories given which will keep the patient's blood figures normal. Some can take 30 calories per kilo, some 20, some less; others could take

40 or 50; but it is safe not to go over 30 calories per kilo unless the patient is a child, when a greater number of calories per kilo can be given with safety. Loss of weight is always a worry to patients, but if a case has a pancreas which can handle 20 calories per kilo at 90 pounds weight it is better to keep to this figure than to try to give more and eventually get into trouble. It is in these cases that the food-substitute containing no value can be used, but too much of this type of food is in the end harmful, as patients should be encouraged not to be eating all the time.

The careful regulation of fluids and salt are essential, as a distressing oedema often results when too much salt is used.

It is advisable when a patient leaves the hospital, after having been carefully studied and their tolerance obtained, to start them off on a lower diet, as the change from the hospital to the home often gives opportunity for mistakes with resulting trouble. Part of the initial treatment is the recognition and removal of all possible foci of infection, for to a large extent the prognosis of the severe type of diabetes depends on the freedom from acute infections: an ulcerated tooth has often been the immediate cause of a precipitated coma. Surgical conditions, especially septic in type, are very common in diabetics, and it requires the greatest skill on the part of the surgeon, both in his method of anesthesia and in his surgical procedures, to bring the case through successfully; just as it requires care on the part of the medical man to prepare the patient for the operation and carry him along after the surgeon is through.

The treatment of impending coma and severe acidosis is a very difficult problem, and requires all the skill that the doctor, the nurse, and a well equipped laboratory possess. Many a patient on the verge of coma, if brought through, proves to be of the mild type, and will live for many useful years.

PROGNOSIS.

Until something more definite as to the cause of diabetes is discovered, and with the knowledge we have as to the pathology of the disease, it would seem that the prognosis of diabetes must be in the future as in the past, rather grave. As patients come to the doctor they divide themselves into three groups: the severe, the moderately severe, and the mild. For the severe class the prognosis is certainly grave, for the moderately severe and the mild the outlook is more hopeful but only where the patient realizes his condition and where the doctor has given him every opportunity to keep well by study of his case, the prevention of intercurrent disease, the instruction in treatment, and the planning of his daily routine. The severe case, however, is the one whose early diagnosis was overlooked, or if recognized early his initial treatment was poor, so that the real prognosis in this type of case depends on an early diagnosis and a thorough education as to diet, and mode of living early in the disease.

Certainly as one follows large numbers of cases today and compares them with those seen previously to the modern method of treatment, one should be very optimistic as to prognosis. Certainly the large majority are much better than they used to be. Diabetes is a very common disease but by careful routine, twenty-four-hour urine examinations, once yearly at least, and the education of the public to the need of this examination, an earlier diagnosis will more often be made. With our modern methods of treatment better results will be obtained until a true cause of the disease is found and a specific treatment discovered.

CONCLUSIONS.

From the study of a large number of diabetics over a period of ten years, the following conclusions are drawn:

1. That by all the modern methods of low calory diet, the diabetic patients do better than by former methods.
2. That without careful blood estimations, diabetics cannot be satisfactorily treated and good results obtained.
3. That the complications of diabetes will develop even though the urine contains no sugar if the blood figures remain high.
4. That the prevention of obesity will reduce the number of diabetics tremendously.
5. That the study of other functions such as kidney function, and the removal of all possible foci of infection, are essential to having the diabetic patient do well.
6. That routine twenty-four-hour urines must be more frequently done, or routinely done, to be able to recognize diabetes as well as other kidney conditions early, and allow earlier treatment.

7. That the disease diabetes illustrates the importance of laboratories where simple routine analyses can be done at a reasonable figure.

DISCUSSION.

Dr. Elliott P. Joslin, Boston: Dr. Brigham's statistics from the Massachusetts General Hospital are very interesting because they show the increasing extent to which diabetes is recognized. He reports 600 cases having been treated in the last six years, as compared with a total of 600 cases in the preceding 90 years. Today a doctor starting in practice has six times as many cases of diabetes to treat as did his father. This comes about in two ways:—More cases are recognized, and in the second place, the cases on the average, as far as I can determine from a study of my own fatal cases, live about twice as long as prior to six years ago. Therefore, it behooves physicians to devote far more time to the study of diabetes today than formerly. Here is the opportunity for the young man first starting in practice.

The prevention of diabetes is an important task for the practicing physician. Dr. Brigham has also emphasized this in his discussion of the etiology of the disease. Certainly two-thirds and very likely three-quarters of all the cases of diabetes are obese prior to its onset. Laughingly this morning I told Dr. Brigham that his recent remarks at the banquet of the Colgate Alumni, assembled to collect sums for the University, were indirectly almost as useful as anything he could do directly for diabetics. Possibly you saw in the morning papers that he advocated penalizing each alumnus five dollars for each inch his girth exceeded thirty inches. The prevention of obesity is a very serious problem for us to consider. The population today cannot die of typhoid fever because there isn't any typhoid, and very few die of tuberculosis. Indeed the children's hospitals show a great decrease in the number of cases of glandular and osseous tuberculosis. Individuals, therefore, must to a large extent develop the diseases of the latter part of life, and one of these is diabetes. We can prevent this to a considerable degree, and it is just as much the duty of physicians to warn their patients against exposing themselves to diabetes as to scarlet fever.

Dr. Brigham's emphasis on routine examinations of the urine I cannot too strongly endorse. It is certainly not overstating the case to say that of the cases of diabetes coming to me scarcely half ever had their urine examined prior to the discovery of their diabetes.

The treatment of diabetes is not so complicated as one may fear. Nurses are a great help. Doctors can use laboratories a great deal, but they can do much without laboratories, and the chart which I have in my hand today has cheered me up as much as any I have seen for a long time. This was of a patient coming here May 1st from the South. He had over four per cent. of sugar. I saw him upon three successive days and then sent him to a nurse in the country, where he stayed two weeks. His blood sugar was 0.40 when he first came to me, but at the end of the two weeks I found it to be 0.180 and the urine sugar free and the diet adequate. If a nurse can do this alone in two weeks, it certainly shows what doctors may accomplish. The whole secret lies in the care and study of the individual case. In this instance all the urinary examinations were made by the nurse.

A word about laboratories. Laboratory work in diabetes must be performed inexpensively in order that all can benefit from it. The only way this can be accomplished is by coöperation. The laboratory data are simple. One does need to know how to do all the tests. One can interpret these very easily with a moderate degree of study, and by means of the knowledge thereby gained great assistance is obtained in the treatment of one's patients.

Dr. William B. Breed, Boston: In connection with the reaction of diabetics to various methods of treatment, there is one point that has not been definitely or accurately brought out,—that is, the total calorie loss sustained by a patient in the process of becoming sugar free and acquiring a tolerance for calories sufficient for his needs. This loss may be called calorie deficit. The daily calorie deficit figure for any patient is obtained as follows:

In the Harris-Benedict prediction tables is found the basal metabolism calorie figure for any patient based upon four factors: sex, age, weight, and height. This figure represents the number of calories burned in 24 hours by any individual person while at rest. It is evident that if sufficient calories are not furnished in the food the body must call upon its own tissues for the remaining number. Moreover, if calories are lost in the urine as sugar, the body tissues must furnish that many more, thus increasing the caloric deficit. For example:

Table I.

H.-B. calorie factor..	1182
plus	
Calories lost in urine	152
	1334=Total calorie deficit
minus	
Calories rec'd in food	640
	694=Net calorie deficit

This last figure, "net calorie deficit," represents the approximate number of calories taken in one day from the tissues of a certain patient on a low diet who showed sugar in the urine.

Last winter at the Deaconess Hospital, fifty diabetic patients were fasted directly from the time of entrance until they were completely or nearly sugar free, instead of being prepared for fasting by gradual reduction of diet, as had been, and is now, the routine procedure. This was done in an attempt to discover which method of initial treatment was the more satisfactory from the standpoint of tissue calorie loss. Although the results are not as yet conclusive or fully developed some interesting figures and facts were produced.

Nine cases from the fasting series are here compared with nine cases from the gradual reduction series. No cases of severe acidosis are included in either group. It so happened that each group contains six females and three males. The basis for comparison rests upon two factors, (1) the Harris-Benedict prediction calorie figure, and (2) the acquisition by each patient of tolerance for food furnishing approximately 15 calories per kilogram body weight. That is, the net calorie deficit was calculated daily for each patient until he had acquired a tolerance for food giving him daily approximately 15 calories per kilogram body weight.

TABLE II.

	FASTING			GRADUAL REDUCTION		
	H. & B.	Total Net Calorie Deficit	Number of Days	H. & B.	Total Net Calorie Deficit	Number of Days
	1,151	4,620	6	1,179	3,460	5
	1,258	5,041	6	1,022	8,170	13
	1,189	5,928	7	1,292	8,670	11
	1,397	6,311	9	1,077	8,933	11
	1,168	10,003	15	1,182	9,345	9
	1,319	14,325	15	1,320	10,449	15
	1,274	14,919	19	1,674	10,757	12
	1,178	18,150	16	1,480	12,375	19
	1,430	30,472	25	1,342	22,100	21
AVER. DAYS			13			14
TOTAL AVER. NET CAL. DEFICIT		12,196			10,473	
DAILY NET DEFICIT		938			748	

938—748=190 calories

The interesting points brought out by this comparison are:

1. The fasting patients averaged only one day less in becoming sugar free and acquiring a tolerance for 15 calories per kilogram body weight.

2. Each day during the experiment, the average patient in the fasting series lost 190 calories more than the average patient in the reduction series.

3. The last patient in the reduction series during the 21 days of treatment lost 22,100 calories,—which is a loss equivalent to 16 days complete fasting, *i.e.*,

$$\frac{\text{Total net calorie deficit}}{\text{Harris-Benedict factor}}=\frac{22{,}100}{1{,}342}=16+$$

Likewise, the last patient in the fasting series during the 25 days of treatment lost 30,472 calories—which is a loss equivalent to 21 days' complete fasting, *i.e.*,

$$\frac{\text{Total net calorie deficit}}{\text{Harris-Benedict factor}}=\frac{30{,}402}{1{,}430}=21+$$

No definite conclusions can, of course, be drawn from this small series of cases, but it is hoped that in the future with more comparisons, a definite opinion on the subject will be tenable.

THE USE OF THE SERUM OF CONVALESCENTS IN THE TREATMENT OF INFLUENZA PNEUMONIA: A SUMMARY OF THE RESULTS IN A SERIES OF ONE HUNDRED AND ONE CASES.

BY GEORGE P. SANBORN, M.D., BOSTON.

THIS series of one hundred and one cases of broncho-pneumonia following epidemic influenza was treated with serum of convalescent patients, during the period between December 1, 1918, and May 1, 1919.

The patients referred for serum treatment were distributed for the most part, in the eastern portion of Massachusetts; a few in New Hampshire and Rhode Island, and one in New York.

The diagnosis in all cases in this series was unmistakably broncho-pneumonia, following epidemic influenza, and in a large proportion the diagnosis had been made and confirmed by a consultant before serum therapy was considered. During the same period, I treated by the same method some cases in which the diagnosis of influenza broncho-pneumonia was suspected, but could not be definitely established. These doubtful cases were not included in the series here reported.

Leucocyte counts were made in nearly all cases prior to serum treatment but I now have record of counts in only thirty. Twenty-seven were below twelve thousand, and three were fourteen thousand, seventeen thousand and thirty-four thousand respectively.

Low leucocyte count was the usual finding, and variations above fifteen or twenty thousand were not very common. The occasional high count suggested complicating infection and required sputum examination and typing, if pneumococci were found: but a high count was not taken to contraindicate convalescent serum, because, irrespective of complications, the important infecting agent was believed to be the same as in the typical cases.

Typing was done whenever a rusty sputum occurred or when the rate of respiration was more rapid early in the pneumonia than would be expected in the typical case. In a considerable number of typings in this series, pneumococci, if found at all, proved to be Type IV.

The importance of typing sputum is shown in a group of cases of probable influenza pneumonia which I treated during the past winter (1919-1920). Type III pneumococcus was found in two cases and Type I in a third. The Type III cases died. The Type I case recovered after three injections of convalescent serum and one of anti-pneumococcus serum.

The majority of the cases of this series were referred for treatment because they were seriously ill and gave the physician concern as to the outcome. The fact that about half of them had been ill from three to seven days when serum treatment was instituted and seventeen died within twenty-four hours, suggests that the serum was put to a severe test.

One hundred fifty-seven doses of serum were administered intravenously to one hundred one patients. The dosage for adults was 100 c.c. and for children 50 c.c. From one to six doses were given each patient according to indications, at eight to twenty-four-hour intervals.

The method of injection was that advocated by Schreiber for intravenous use of salvarsan, using rubber tubing, three-way cock, straight eighteen to twenty-gauge needle and 20 c.c. glass syringe. No discomfort was caused other than that attending the insertion of the needle. In no case was it necessary to cut down on a vein or to inject serum subcutaneously.

The donors of blood, all of them adults, were chiefly private patients, but to some extent were ex-hospital patients who were willing to part with their blood for a consideration.

Those patients only were used as donors who had recovered from an undoubted bronchopneumonia which had followed epidemic influenza. Those giving evidence of having or having had tuberculosis or syphilis were not used as donors. Those who had received convalescent serum as treatment were also made use of and their serum seemed to have satisfactory potency on clinical grounds.

Blood was taken from convalescents as early as three days after the temperature had reached normal and as late as two months after this time. The sera taken during early convalescence seemed more potent than those taken toward the end of the two months' period.

The amount of blood taken at a sitting was from 300 to 500 c.c., and bleeding was repeated once, twice, and occasionally three times at suitable intervals if circumstances would permit. There was never any technical difficulty met in obtaining the desired amount of blood; there was little discomfort occasioned the donor and there were no untoward happenings.

The apparatus used in drawing blood was as follows:

To receive the blood a 500 c.c. wide-mouthed bottle with tight fitting rubber stopper perforated by two glass tubes, one-eighth inch bore, bent at right angles. To one of these tubes or nozzles was connected a thick-walled rubber tube three-thirty-seconds of an inch inside diameter, eight inches long, which had in its free end a male connection carrying a seventeen or eighteen-inch gauge needle of non-corrosive metal. This needle with tube attached, was inserted into a test tube and fixed in place by a tight cotton plug. The other glass nozzle was lightly plugged with cotton. This receiving bottle with needle and tubing attached was wrapped in cloth and sterilized.

To act as a vacuum chamber a second bottle was prepared, similar to the first, but without needle or rubber tubing. When blood was to be drawn the open tube of the sterile receiving bottle was connected by a short rubber tube to one of the glass nozzles of the vacuum bottle and the remaining nozzle of the latter connected by a rubber tube six inches long to the vacuum pump.

Technique. The donor assumed a recumbent position with arm outstretched and resting on a table or chair. The apparatus as shown in Fig-

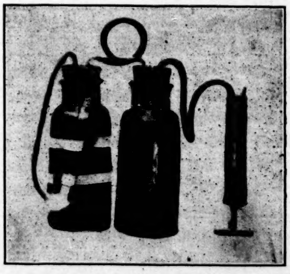

FIGURE 1.—Apparatus for obtaining blood as used at the Boston City Hospital.

ure 1 was placed in a convenient position close to the arm. After carefully sterilizing the skin at the flexure of the elbow a tourniquet was applied with proper tension. The rubber tube with needle attached was removed from the test tube and the needle inserted into a prominent vein. If properly located within the lumen, blood flowed at once into the bottle. The flow was accelerated by means of the vacuum pump so that clotting in the needle was prevented.

A sufficient amount of blood having been obtained, it was allowed to clot in the bottle at room temperature for several hours. The clot was then separated from the wall of the bottle by shaking, and the bottle placed in the ice chest over night.

The following day serum was pipetted off, centrifugalized to remove red cells, bottled, labelled with the donor's name, and a specimen of the serum taken for the Wassermann test. When serum was urgently needed, the procedure could be cut short and the available serum prepared in from four to six hours.

Serum was pooled as it was required for treatment of a given case. For each 100 c.c. dose, equal parts of as many individual sera as were on hand, were used. Pools usually contained serum from three to five different donors. It was not the rule to add preservative to the serum because it was kept at a low temperature and was used within a day or two and often within a few hours of its preparation. To those sera which were kept more than two or three days, three-tenths of one per cent. of chloroform was added.

The potency of pooled serum seemed to be fairly constant, judged by its apparent clinical effect among cases treated early in the pneumonia.

Of the sixty-seven cases that recovered, fifty-nine required one or two doses; seven, three; and one, six. The maximum dosage of serum in a given case in the recovered group was 700 c.c.

Of thirty-four cases that died, seventeen that received one dose did not live a sufficient length of time to receive a second. The remaining seventeen received two to four doses and two of them received 500 c.c. and 700 c.c., respectively, as the total dosage.

Reactions following serum were conspicuous by their absence. There were no cutaneous eruptions and there was nothing suggestive of anaphylaxis. In not more than ten per cent. of the cases there occurred a chill which was usually slight, not prolonged and not at all prostrating. Chills did not occur after subsequent doses in a given case. Not more than two or three patients complained of serious discomfort accompanying the chill. Nothing occurred in the way of a reaction that could possibly lessen the chances of recovery even in the case of the sickest patient.

About one-half of the cases were seen a second time and this only because more treatment was called for. Through the kindness of the attending physicians I have charts of a fair proportion of the cases and information as to the end results in all of them.

The course of the temperature after injection of convalescent serum is of some interest. Among the recovered cases forty-three received but one dose of serum. Of these I have record of twelve and in eight of these temperature fell to normal within twenty-four hours; in two it fell in thirty-six hours and in two in forty-eight hours. Of sixteen cases receiving two doses I have record of three. One fell to normal in thirty-six hours; one in forty-eight and one in one hundred and twenty hours. Of seven cases receiving three doses each, one temperature came down in forty-eight hours and two in sixty hours.

One case received four doses and is worthy of special note. The temperature dropped gradually during ninety-six hours, condition improved but delirium continued. He was transferred to the McLean Hospital where about a month later he developed a second bronchopneumonia and again became critically ill. Two more injections were given on successive days, temperature fell to normal in forty-eight hours and he recovered.

Among thirty-four cases that died, seventeen died before a second dose of serum could be given. In these seventeen cases no constant effect was noted, either favorable or unfavorable, that could be ascribed to the serum. Among ten who lived to receive two doses, there was a drop in temperature in four, but general condition was not evidently affected. In five cases no change was noted.

One of the cases receiving two doses is of interest because he died several days after his temperature had reached normal and convalescence appeared established. He suddenly developed oedema of the lungs and died in a few hours.

Five cases received three doses; three died in forty-eight hours and there are no records of the other two.

Two received four doses. In one the temperature gradually fell to normal on the fourth day. In spite of this, respiration and pulse remained high and the patient died having had a normal temperature for four days. In a second case treatment was begun on the second day of the pneumonia and 700 c.c. of serum was administered within about forty-eight hours with no effect. Hemolytic streptococcus was found predominating in the sputum.

Beginning between twelve and twenty-four hours after the serum injection among those who recovered, there usually developed a consistent and unmistakable improvement; cyanosis became less marked, toxic symptoms were relieved and a sense of well being appeared gradually to be established. The change from a sick to a convalescent patient seemed to me very clean cut, more so than in the usual non-serum treated case that I have seen, and reminded me somewhat of the effect of diphtheria antitoxin when given in sufficient amount to an appropriate case.

There were practically no complications in recovered cases. One case already described did not recover from his delirium for some weeks and developed a second attack of broncho-pneumonia from which he recovered. A second case developed a Type IV lobar pneumonia after the temperature had been normal about twenty-four hours, but recovered. The percentage of complications was three.

There were nine cases of pregnancy in this series, and two deaths, both following miscarriage. The percentage of mortality was twenty-eight. The reported mortality among pregnant women was high.[7, 8] In one series thirty-four per cent. died and pregnancy was interrupted in thirty-seven per cent. of all cases; in a second group, fifty per cent. mortality; in a third, the mortality when pregnancy was interrupted was eighty per cent. and when uninterrupted, forty-eight per cent. Other groups have been reported with lower mortality rate.

The mortality rate in this series of one hundred one serum treated cases was thirty-three and six-tenths per cent. In one hundred eighty-four cases of influenza-pneumonia not treated by serum, occurring in the practices of six different physicians in this vicinity, during the same period in which this series was treated with serum, the mortality was twenty-one per cent.

TABLE I.

MORTALITY RATES OF INFLUENZA-PNEUMONIA IN THIS VICINITY TREATED IN PRIVATE PRACTICE WITHOUT SERUM, DURING THE PERIOD DECEMBER, 1918, TO MAY, 1919.

PHYSICIAN	NUMBER OF CASES	DIED	MORTALITY PER CENT.
W. C. M.	7	1	14
M. E. C.	16	4	25
M. C. A.	20	5	25
W. E. F.	35	9	25.3
F. R. S.	19	1	5.2
T. J. O'B.	87	19	22
TOTALS	184	39	21

Using this untreated group as controls, it will be seen that the serum treated group has a higher mortality rate by twelve per cent.

The factors contributing to this high mortality rate in the treated cases, as compared with the controls, were several. The serum treated group was composed largely of cases selected for special treatment because they were severe, while the control series were the average cases as they occur in private practice. Seventeen of the thirty-four cases that died were practically moribund when seen and died within twenty-four hours after the serum was given; two died of an early developing complication due to the hemolytic streptococcus; two others died some time after the temperature had reached normal, associated with sudden developing pulmonary oedema. The most important factor which perhaps makes unnecessary the mention of the above is that twenty-eight of the thirty-four who died did not receive serum until after the pneumonia had been under way three to eight days. Influenza pneumonia is extremely rapid in its progress. The average period of life in one group of thirty-nine fatal cases, was four and seven-tenths days.[13]

It is reasonable to suggest, on this basis, that the period during which influenza pneumonia is most amenable to any therapeutic method, does not extend much beyond the first four or five days of the disease, and to assume that the above noted twenty-eight cases first treated by serum on or after the fourth day, did not have a safe margin of time for a serum to bring a broncho-pneumonia to a standstill and to start its reversal. These twenty-eight cases determined the high mortality rate for this series, as is shown in Table II.

The generalization that an antiserum is efficient according as it is given early in a disease and becomes less and less efficient as its administration is delayed from day to day, seems generally accepted. In diphtheria, when serum is administered on the first day of the disease, the mortality should be and generally is, nothing: given on the sixth day, the mortality is nearly three times that on the second.[14] In lobar pneumonia, Type I serum is efficient during the first six or seven days of the disease, and the earlier in this period it is given the more certain the favorable outcome. After this period it rapidly loses its curative value. It is permissible, therefore, to judge the value of an antiserum upon the results among cases treated early in a disease contrasted with the results among those treated first during the later stages.

Table II was prepared to show the mortality rate in this series of one hundred and one cases according to the day of the pneumonia upon which the treatment was begun. No cases are excluded from this table.

TABLE II.

MORTALITY ACCORDING TO THE DAY OF PNEUMONIA UPON WHICH CONVALESCENT SERUM TREATMENT WAS INSTITUTED.

DAY OF PNEUMONIA	NO. OF CASES TREATED	RE-COVERED	DIED	PER CENT. MORTALITY
2nd	20	18	2	10%
3rd	35	31	4	11%
4th	17	11	6	35%
5th	15	4	11	73%
6th	9	3	6	66%
7th	3	0	3	100%
8th	2	0	2	100%
TOTALS ...	101	67	34	33.6%

As shown in the above table, twenty cases received the first serum injection on the second day of the pneumonia, and ninety per cent. recovered: thirty-five received it on the third day and eighty-nine per cent. recovered: of seventeen treated on the fourth day, sixty-five per cent. recovered: of fifteen on the fifth day, twenty-six per cent. recovered, while of the five cases treated on the seventh and the eighth days, none recovered.

Serum treatment instituted on the second or third day of the pneumonia resulted in mortality of ten and eleven per cent., respectively; instituted on the fourth day, the mortality was three times that on the third; on the fifth day the mortality was seven times that of the second or third day.

The number of cases for each day from the fifth to the eighth was comparatively few, but all cases combined, it amounted to twenty-nine cases with twenty-two deaths and a mortality rate of seventy-five per cent. There were seventy-two cases treated during the first four days of the pneumonia with a mortality rate of sixteen per cent. Thus the mortality rate among the cases treated the last four days of this eight-day period was more than four times the mortality rate among those in which treatment was instituted during the first four days.

In fifty-five cases serum treated on the second and third day of the pneumonia the mortality rate was ten and one-half per cent. The mortality rate of the one hundred eighty-four control cases treated in private practice without serum was twenty-one per cent., or exactly twice as great as that of fifty-five cases treated by serum on the second and third day of the disease.

Analysis of the statistics in this group of cases indicates that the mortality rate increased according as administration of serum was deferred from day to day and suggests that convalescent serum may have had curative value during the first few days of the pneumonia; that its efficiency from then on became rapidly less in proportion as the condition of the patient seen later and later in the disease became more and more serious and rendered him less amenable to treatment of any kind.

MacLachlan and Fetter's series of forty-seven cases was treated by citrated blood, and the mortality rate indicated according to the day upon which treatment was instituted. It was ten per cent. in cases treated on the first day of the pneumonia, twenty per cent. for the third day, and fifty-seven per cent. when treatment was delayed until the fourth day. The curve of increase of mortality rate is broken on the second day by a rise to forty per cent.; the total number of cases is few, particularly on the third and fourth day, and seven cases that died within twelve hours were omitted from the statistics. Nevertheless the difference in the mortality rate of the cases treated early and those treated later is in general consistent with the differences in mortality rate between the cases treated early and those treated late in the disease in the series here reported.

In one hundred fifty-one cases at the Naval Hospital, Chelsea, reported by McGuire and Redden,[2] convalescent serum was administered during the first two and one-half days of the disease (average) and the mortality rate was four per cent.; whereas in Dr. Redden's series of one hundred cases in private practice,[3] treated on the average two to five days later in the pneumonia, the mortality rate was sixteen per cent. or four times that of the early treated group at the Naval Hospital. Thus is suggested the possibilities of serum treatment instituted in the very early stages of pneumonia, as compared to the later stages.

Opinions as to the value of convalescent serum, citrated plasma, or citrated whole blood, in relation to their early administration, are expressed in a number of published articles on the treatment of influenza pneumonia by blood or blood fluids of convalescent cases. They are as follows:

Hartmann and O'Malley:[5] Serum must be given early if a large percentage of recoveries is to be expected.

MacLachlan and Fetter:[4] Citrated blood of convalescent pneumonias has beneficial effect if given early. Beyond the third day it is of little value.

Stoll:[12] Occasionally of value when used as late as the fifth day. Used on the first three days, it seems to lower the mortality rate and to diminish complications.

Bass and Ervin:[10] Of marked value, but early administration important.

Redden:[3] Course of disease shortened. Death rate cut in two in cases chosen for their severity. Death rate reduced three-fourths in large series in hospital practice where cases are seen early.

This expression of opinion based on four hundred and fifty-five treated cases, briefly stated, amounts to this; convalescent serum is of value in proportion as it is given early in pneumonia. This is consistent with the expectations in the case of antisera of established value, and with the finding in the series of cases reported in this paper, based on the mortality rates calculated according to the day of pneumonia on which treatment was initiated, namely, that the time factor, that is the period between the onset and the day of treatment, had a very close relation to the mortality rate, and largely determined the success or failure of convalescent serum.

A correct estimate of the value of convalescent serum is impossible if based on the total mortality rates now available, not only because they vary so widely in different treated groups of cases, but also and chiefly, because there are no stable mortality rates in untreated cases for comparison. No matter how low a mortality rate is achieved (unless it be zero) in a given group of treated cases, a group untreated, with as low a rate is apt to be found.

The statistics of the controlled groups of Hartmann and O'Malley, Ross and Hund, Kahn,[9] Gould,[11] the uncontrolled groups of McGuire and Redden, and the series reported in this paper, would seem to justify a favorable estimate of the value of convalescent serum.

On the other hand, in the carefully controlled series of Locke[15] (twenty-two cases, twenty-two controls) and Lord[16] (twenty-two cases, twenty-five controls), the treated cases have a mortality rate in the one case as great as, in the second greater than that of the controls.

The mortality rates based on the day treatment was begun, in the series reported in this paper, showed that the period of the disease before treatment was instituted had a direct bearing upon the outcome of the case. Consequently correct judgment of value or lack of value of serum in a given group of cases, requires data as to the day of the disease on which serum treatment was instituted in each case. For it cannot be questioned that two groups, one treated and one untreated, seen first late in the disease, would not only have a high mortality rate, but that rate would be about the same for both groups. A small group, even of controlled cases, therefore, is apt to lead one astray, particularly in hospitals where late and serious cases are apt to predominate. A very large series of controlled cases is necessary, particularly in hospital practice, in order to equalize the effect of the severe cases upon the mortality rate.

CONCLUSIONS.

Convalescent serum proved a safe therapeutic agent.

Clinical improvement consistently followed its administration in cases that recovered and in some that died, and gave the impression that it had therapeutic efficiency.

The total mortality rate for this series was not a measure of the value of convalescent serum, but was an index of the severity of the disease in the group as a whole.

Mortality rates calculated according to the day on which serum treatment was instituted in each case, as in Table II, furnished the essentials for an approximate estimate of the value of convalescent serum in this series of cases.

Convalescent serum appeared to have value when it was administered during the first three days of the pneumonia, in this series of cases. This conclusion is based on a mortality rate of ten and one-half per cent. as against twenty-one per cent. in a control series of one hundred eighty-four cases of average severity, occurring in private practice at the same period of the year, in the same general locality, but not treated by serum.

Its value rapidly decreased when administered after the third day of the pneumonia as indicated by rapidly increasing mortality rates, according as administration was delayed from day to day. Given during the first three days, it was three times as efficient as when delayed until the fourth day, and seven times as efficient as it was when deferred until the fifth day. Given during the first four days of the pneumonia it was five times as efficient as it was when given during the succeeding four days.

The time factor, that is the period between onset and day of treatment, had a close relation to the mortality rate and seemed largely to determine success or failure. This corresponds to findings in case of sera of established value.

Total mortality statistics of uncontrolled as well as of small controlled series, because of the obvious effect of cases treated late in the disease upon total mortality rates, are of little value as basis for an accurate estimate of the efficiency of convalescent serum.

Complicating infection by hemolytic streptococci accounted for two deaths in this series. Although the antibody content of convalescent serum is uncertain in character and concentration, the serum undoubtedly would not regularly contain antibodies to the type pneumococci or to the streptococci, which would be specific for the case treated. Since a number of such cases may occur in any series of influenza pneumonia cases, the effect upon the mortality rate would have to be considered.

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DISCUSSION.

DR. LESLEY H. SPOONER, Boston: My experience in the treatment of influenza pneumonia, which Dr. Sanborn has taken up so exhaustively, has not been sufficient to warrant any authoritative addition to the discussion. I wish to express, however, my personal appreciation for Dr. Sanborn's work and for his presentation of the matter.

I feel that it would not be amiss to call your attention to a phase of serum therapy which has been too much neglected, but which ranks only slightly less in importance than the specific treatment of pneumonia of both influenza and lobar types.

During the influenza epidemic at Camp Devens, September and October, 1918, except for the acute fulminative pneumonia—which was classified by pathology and bacteriology as influenzal—a large percentage of fixed types of pneumococci was found in the sputum of those individuals showing signs of pneumonic complications. This observation was corroborated by limited work upon blood cultures, made from blood of the same patients.

From a clinical standpoint it is of especial interest to note that the pneumonia in these individuals was almost entirely of the bronchial type.

Although Cole and others have demonstrated the absolute indication for treating with specific serum the cases of acute lobar pneumonia, presenting Type I organisms, not enough stress has been laid upon the application of this therapy to corresponding cases of bronchopneumonia.

Our work shows that at that period the mortality of all types of pneumococcus infection was at least doubled. As a result evidently of specific therapy the mortality in fifteen cases was reduced to seven per cent.

This compares very favorably with observations of other investigators, since the same mortality was reported from the Rockefeller Hospital by Cole, Dochez and others in cases of acute lobar pneumonia in no way influenced by such factors as influenza.

From these observatons I wish to emphasize the importance of this treatment in bronchopneumonia, the prolonged nature of which renders the disease most dangerous. Lastly I wish to insist that it is the duty of every physician to ascertain the type of infecting organisms at the earliest possible moment, regardless of the variety of pneumonic pathology which is present.

DR. L. W. MCGUIRE, Boston: I was very much interested in Dr. Sanborn's paper as it seems to bear out the treatment which was originated in my service at the Naval Hospital, Chelsea, and in which our chairman, Dr. Van Nüys participated. We treated 170 cases of influenza pneumonia with convalescent human serum. In the first 151 cases we had six deaths, or a mortality of 4%; this percentage continued in the remainder of the series.

Dr. Sanborn points out that the cases treated early in the disease practically all recover. I can surely substantiate that. Our mortality in the cases treated during the first two days of the pneumonia was about one per cent., the mortality rising thereafter. We were favorably situated at the Naval Hospital as we were able to follow most of the cases through their influenza and diagnose the pneumonia complication in its incipiency, and for this reason our results were very favorable. One difficulty we encountered was in diagnosing an influenza pneumonia from a streptococcic pneumonia, as during the latter part of the epidemic an outbreak of primary streptococci pneumonia occurred and the differential diagnosis was at times difficult.

I think the difficulty experienced in carrying out this treatment in some of the hospitals was due to confusing these two diseases. I am sure if convalescent serum had been more generally used, the mortality of the epidemic would have been substantially decreased. In Type I lobar pneumonia, our series reached 30 cases with one death. The results of Type I serum seem to compare favorably with diphtheria antitoxin.

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Book Reviews.

Rational Therapy. By OTTO LERCH, A.M., Ph.D., M.D. The Southworth Company. 1919.

Rational Therapy outlines new methods of therapeutic treatment which will be of interest to physicians. The author of this volume believes that the basis of all treatment is the blood and that disease can be most readily cured by purifying the blood and correcting its distribution so that it can be brought to the point where it is most needed. He believes that the blood is nature's healing force—that it contains properties which serve to protect it from infectious disease and bring about recovery and repair of the diseased organs. Dr. Lerch believes that as all the organs make or distribute blood, it only remains to use therapeutic means to influence the circulation, create hyperemia or anemia, as the case may indicate, remove toxins and waste from the blood, and supply it with ingredients in which it is lacking. Various means of accomplishing this are discussed: treatment with the air bath, sun bath, and climate; special attention to the diet of the patient, with consideration of his condition and age, his occupation, his power of assimilating food; the application of exercise and massage, hydrotherapy and electrotherapy; and treatment with hyperemia. The principles of vaccine and serum therapy, organotherapy, and chemotherapy are discussed with reference to the author's conception of rational therapeutic treatment of disease. The book is illustrated by a number of helpful diagrams and plates.

Surgical Aspects of Typhoid and Paratyphoid Fevers. By A. E. WEBB-JOHNSON. London: Henry Frowde, Hodder and Stoughton. 1919.

As our knowledge of typhoid and paratyphoid fevers has been greatly increased during the war, a review of the subject is most welcome. In this volume are considered the surgical aspects of the problem; our present conceptions of these diseases and methods of treatment are commented upon by a man who has had exceptional opportunities for studying a large number of cases. In an historical sketch, from the time of its discovery in 1643 to the present, the author has briefly summarized the observations of such men as Thomas Willis, Sir William Jenner, John Hunter, Sir James Paget, and W. W. Keen. In an introductory chapter are considered the nature and symptoms of typhoid and paratyphoid infections; the results observed in twenty-five hundred cases are recorded in tabular form. Infection of the alimentary tract, the spleen, the liver, biliary passages, and pancreas, the cardiovascular system, the urinary, respiratory, and muscular systems, diagnosis, and treatment. Pathological conditions which have been found in bones as a result of typhoid infection are recorded. One of the most important problems, the carrier problem, is well considered, with especial reference to the importance of the spleen as a primary focus. This book is well written and illustrated, and is a valuable contribution which will be appreciated by the profession.

Manual of Exercises for the Correction of Speech Disorders. By MAY KIRK SCRIPTURE and EUGENE JACKSON. Philadelphia: F. A. Davis Company. 1919.

The shrill voice and careless speech of the average American has long been recognized, and is probably detrimental to our business as well as to our social life. The *Manual of Exercises for the Correction of Speech Disorders* points out that both normal and abnormal speech should receive far more careful attention than is ordinarily devoted to it. The authors explain speech disorders and methods to be used in the correction of stuttering, lisping, and other results of various organic defects. This is the second of a series of books on speech correction; it is designed for the use of both the teacher and the pupil, and contains material which is the result of many years of experience in private practice and at the Vanderbilt Clinic and at the University and Bellevue Hospital Medical College Clinic. Practical exercises, made up of simple, colloquial English, simple proverbs, poems, and stories, are described and illustrated. The sounds in the English language are explained. Speech mechanism is divided into four constituents: breathing, phonation, articulation, and therapy, with exercises provided for bringing about a proper coördination between them. Perhaps not the least worthy purpose of this book is to build character by teaching the speech defective how to destroy self-consciousness, strengthen his will, take a courageous and determined view of life, and concentrate upon one point at a time. The material set forth in this book will benefit the so-called normal individual, and will be of utmost value in giving to the speech defective the poise, confidence, and ability which he lacks unless properly trained.

General Medicine. The Practical Medicine Series, Vol. I. Edited by FRANK BILLINGS, M.S., M.D. Chicago: The Year Book Publishers. 1919.

This volume dealing with general medicine is one of the most valuable of the *Practical Medicine Series,* a series of eight works, issued at about monthly intervals, covering the entire field of medicine and surgery. These volumes give a complete review of the subjects treated for the year prior to this publication; and although the series is published primarily for the general practitioner, it is so arranged that those interested in special fields may secure only the works bearing upon these subjects. This volume considers general aspects of medicine. Infectious diseases,—tuberculosis, cerebrospinal meningitis, mumps, measles, trench fever, malaria, and typhoid fever,—are discussed with regard to pathology, diagnosis, and symptoms, prognosis, and treatment. Of timely interest is the chapter on influenza and pneumonia, in which the epidemics at various army and navy camps are briefly reviewed. The value of bacterial vaccine as a prophylactic against influenza is considered, and statistics quoted which give evidence that no protection was afforded by the vaccine administered at a state institution. Other sections of the book deal with diseases of the chest, bronchi, lungs and pleura, heart and blood-vessels, ductless glands, metabolism, kidneys, gastrointestinal tract, and of the liver and gall-bladder. The material presented in this book, well illustrated by plates and charts, offers to the profession the most recent and reliable observations on subjects of general medical interest.

Malaria and Its Treatment. By CAPT. A. CECIL ALPORT, R.A.M.C., M.B., Ch.B. New York: William Wood and Company. 1919.

Malaria and Its Treatment, in which Captain Alport has recorded the cases, which have come under his observation in the line and at a base hospital, offers to the profession a valuable contribution to the treatment of malaria and its complications. Malarial parasites are described and illustrated by excellent colored plates, and the technique of preparing and staining blood-films is carefully and clearly explained. In discussing prophylaxis, such measures as quinine prophylaxis, mosquito-proof houses and huts, mosquito nets, and various methods of malarial drainage are discussed. The author describes the clinical features of acute malaria and suggests helpful methods of administering quinine and performing lumbar puncture. Cases of cerebral malaria, pernicious malaria, chronic malaria, malarial anemia, and blackwater fever are discussed from the point of view of symptoms and treatment, and are illustrated by laboratory reports. The author emphasizes the importance of remembering the influence which malaria may have on the nervous system, and cites cases of patients suffering from obscure nervous lesions, who had resided previously in malarial countries. In a chapter dealing with concurrent diseases, are important observations on malaria and appendicitis, pneumonia and malaria, and malaria complicated by dysentery. The author is to be commended for having compiled, while on active service, a book so concisely and comprehensively arranged.

The Science and Art of Deep Breathing. By SHOZABURO OTABE, M.B., Tokio, M.D., Bâle. New York: William Wood and Company. 1919.

The Science and Art of Deep Breathing has been written by a man who has personally experienced the effects of deep breathing as a prophylactic and therapeutic agent in the treatment of consumption. The author explains as a motive for beginning deep breathing the fact that when a child, he was threatened with tuberculosis. The story of his attempts to strengthen his lungs by practicing deep breathing is convincing, and should encourage others who are apprehensive of their physical condition.

In this volume, comments are made upon the discovery and practice of deep breathing through Brahamanism, and the methods adopted by Brahma, by Buddha, and by Hirata, a famous Japanese scholar, are outlined. The author's own methods are chiefly three: the sitting method, the lying method, the walking and standing methods. He explains that the relation between deep breathing and bodily exercise is often misunderstood, and gives scientific reasons in contradiction of popular fallacies. The salutary effects of deep breathing on the whole body are considered from a scientific standpoint, with discussion particularly of its relation to emphysema of the lungs, to the brain, and the mind. Experiments on animals, although not so successful as might be hoped for, yet indicate clearly that the daily application of deep breathing prevents to a certain extent the tubercular process from developing in the lungs. This record of the author's personal experience, strengthened by experiments on his friends and patients, should interest all who are concerned with the prevention and cure of tuberculosis.

The Mind and Its Disorders. By W. H. B. Stoddart, M.D., F.R.C.P. Third Edition. Philadelphia: P. Blakiston's Son & Co. 1919, pp. 572.

The author "having personally investigated very many patients by the psychoanalytic method and thus been convinced of the truth of Freud's doctrines," has fundamentally changed his attitude toward mental diseases. He states in the preface, "Mental disease can only be understood by studying the psychology of the unconscious mind of patients, and the physical manifestations of a functional nervous disorder must be regarded as secondary, not primary as I taught in the first edition." He still adheres to the interactionist point of view in which "mentation" is considered as a "process" having its physical basis in the brain, but notes (page 2) "For the present we must admit our total ignorance of the physical processes underlying subconscious and unconscious mental phenomena."

The book is divided into three sections, Normal Psychology, The Psychology of the Insane, and Mental Diseases. The chapters on Psychology present an instructive resumé of modern views with additional paragraphs on unconscious mentation, sensations, precepts, associations, emotion and action. The special chapter devoted to psychoanalysis indicates clearly the facts discovered by this method and its technique. In the section on Mental Diseases, there is considerable emphasis on the detail of symptomatology, and the reader is permitted much freedom of choice from many theories as to pathology and treatment. Various modern methods for the treatment of general paralysis of the insane are discussed in some detail.

There is an enlightening chapter on the Insane and the Law with valuable hints as to expert testimony. The concluding portion of the book deals with methods of staining the central nervous system, and the examination of the cerebrospinal fluid.

In consequence of the vast range of material covered in brief compass, this volume falls short of being an authoritative reference of recent advances in mental disorders. As a manual it should have a definite value.

Physical Reconstruction and Orthopedics. By Henry E. Stewart, M.D. Authorized for Publication by the Surgeon General of the U. S. Army. 67 Original Illustrations and 2 Diagrams. New York: Paul B. Hoeber. 1920.

Dr. Stewart states in his preface that it has been his object to present in condensed form the many principles of orthopedics in the treatment of the defects of childhood, war injuries and industrial accidents, laying stress upon the treatment by massage, exercise, and other types of physiotherapy. The book is carried as an aid to the physician, reconstruction officer, physical director and orthopedic assistant.

Part I treats of exercise with special relation to the necessity for physical training in youth and the athletic problems, heart strains and safeguards for boys and girls in athletics. Proper exercises for various ages are outlined. A chapter is devoted to baking, hydrotherapy and electrotherapy. A chapter is devoted to massage and one to vocational therapy.

Part II—Orthopedics: Chapter I is divided into the consideration of congenital defects, infantile paralysis, the diseases and injuries of the spine, curvature of the spine, joint injuries and arthritis, diseases of bones, fracture and dislocation, foot strain and braces and casts. The profuse illustrations make much of the text clearer. The work is essentially a hand book and not a detailed treatise. Some of it is fragmentary while other parts are in valuable detail. It should represent a very fair war experience with much that is applicable to civil life.

The Surgical Clinics of Chicago. Vol. IV, No. 1. 83 Illustrations. Paper Bound Octavo. Philadelphia: W. B. Saunders Co. February, 1920.

This volume contains the following contributions:

Dr. Arthur Bevan: Branchial Cyst; Intestinal Obstructions; Appendix Abscess Simulating Carcinoma of the Ascending Colon; Imperforate Anus, and Gauze Sponge Left in Gall Bladder — Removal After Interval of Eleven Years.

Dr. E. W. Andrews: Chronic Cholecystitis and Cholelithiasis with Positive X-Ray Diagnosis; Two Cases of Myeloma.

Dr. D. N. Eisendrath: The Inguinal Route in Femoral Herniotomy.

Dr. Kellogg Speed: Prolapsus Recti.

Dr. Gatewood: Stricture of the Esophagus; Dislocation of the Hip with Fracture of the Acetabulum.

Dr. P. H. Kreuscher. Carcinoma of the Esophagus; Gastrostomy.

Dr. A. A. Strauss: Congenital Pyloric Stenosis.

Dr. Carl Beck: Ectropion of the Lower Lid; Plastic on the Heel; Ununited Fracture of the Tibia and Fibula—Repair by Open Operation and Wiring of Fragments.

Dr. C. B. Davis: Lymphosarcoma of the Spine; Extradural Fibroma of the Spine; Ulnar Paralysis.

Dr. G. T. J. Griffin: Empyema—A Brief Resumé of Treatment.

Dr. B. F. Davis: Traumatic Separation of the Upper Femoral Epiphysis.

Dr. G. L. McWhorter: Circumcision; Technic of Local Anesthesia; Arthrotomy of the Knee-Joint Under Local Anesthesia for Removal of the Medial Meniscus.

Dr. C. M. McKenna: Cysts of the Epididymis and Vas; Hydrocele and Amputation of the Scrotum; Sarcoma of the Bladder.

Dr. C. Culbertson: Ligament Shortening in the Treatment of Retroflexion of Uterus.

Dr. E. L. Cornell: Krönig Cesarean Section.

Dr. R. L. Moodie: Studies in Paleopathology; The Diseases of the Ancient Peruvians, and Some Account of Their Surgical Practices.

The most notable article being the description of Strauss' operation for congenital pyloric stenosis, which seems to be a marked advance over the older Rammestedt procedure.

Shell Shock and Other Neuropsychiatric Problems. By E. E. SOUTHARD, M.D. Boston: W. M. Leonard. 1919.

The euphonious and alliterative term "shell-shock" has been recently used in so loose and confusing a manner, that this comprehensive work by Dr. Southard is a valuable and welcome addition to the clarifying of the subject. It will serve to clear up the many important neuropsychiatric problems which have been encountered during the great war and the many angles of approach in nervous and mental diseases which arise in civil practice. This encyclopedic compilation, which appeared only a short time before Dr. Southard's untimely death, clearly illustrates his systematic mind and his ability to handle and classify a mass of heterogenous material.

All the cases reported, five hundred and eighty-nine, are drawn from the European literature, each case being condensed, accurately summarized in its salient points at the beginning, and finally rigidly classified from the standpoint of nature, treatment and diagnosis, so that the reader can judge of the varying clinical pictures which have been loosely and sometimes erroneously termed "shell-shock." Briefly, the classification adopted is as follows: I. Psychoses Incidental in the War (the syphilitic, feeble-minded, epileptic, alcohol-drug-poison, local brain lesion, symptomatic, schizophrenic, manic-depressive, psychoneurotic, and psychopathic groups). II. The Nature and Causes of Shell Shock. III. The Diagnosis of Shell Shock. IV. The Treatment of Shell Shock. This classification is followed by a general discussion of the vast collected material, a discussion whose purpose it is to enquire into the general nature of shell-shock and the mechanism of the war neuroses.

Organic lesions of the peripheral nerves, brain and spinal cord, certain latent psychoses, particularly in the schizophrenic group, which the experiences of war threw into activity, hysteria without somatic trauma, are summarized and discussed in a manner which is bound to be of practical importance in the handling and pathogenesis of these conditions in civilian practice. Those of us who deal with neuropsychiatric problems have frequently seen a latent psychoneurosis or psychosis precipitated by emotional experiences, trauma, or mental conflicts, as they occur in every-day life. The war has merely furnished more clearly defined and severe instances of these conditions, but in both cases, the mechanism remains the same, the clinical picture is identical, although the upsetting factors may be totally different. The attempt of Babinski to dismember hysteria and to raise a purely hysterical reaction to the dignity of a clinical entity under the title of "physiopathic syndrome" will not bear the test of clinical experience, as it deals purely with conscious reactions and not with unconscious motives. In most of the war neuroses it must be clearly borne in mind that the condition arises because reality has become unbearable and therefore, to use a terse psychoanalytic phrase, there results a "flight into disease."

This book is a monument to Dr. Southard's industry and wide range of learning and will remain a work of valuable reference to those who are interested in the broader aspects of neuropsychiatric problems.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M.D., and FREDERICK PETERSON, M.D. Philadelphia and London: W. B. Saunders Co. 1919.

This textbook, which now appears in its ninth edition, is written along the conventional lines of classification of nervous and mental diseases.

The authors state in their preface that "some radical views which have attained considerable popularity have not been incorporated." If the authors mean by "radical views," the newer interpretative studies of the neuroses and phychoses, their conservatism is not well taken, as within the memory, of some living physicians, Koch's epoch-making discovery of the tubercle bacillus was at one time considered "radical."

The neurological section, so far as it deals with organic neurology is well done, as it furnishes all that the student or general practitioner needs to know in the diagnostic difficulties of organic nervous diseases. The differential table between cerebral hemorrhage and cerebral thrombosis ought to be familiar to all physicians, so often is the diagnosis incorrectly made. The formulation of rules to guide the physician in his examination of a mental case can be commended, particularly the insistence that the physician must go to the patient as a physician and not under the pretence of being someone else, a device so often suggested by the family or friends.

The portion devoted to psychoanalysis is inadequate. Freud's epoch-making contributions are referred to only briefly and then not accurately, for instance, the title of the fundamental contribution to psychoanalysis, the "Interpretation of Dreams," is given as "Divination of Dreams."

Modern Surgery. By JOHN CHALMERS DE COSTA, M.D., L.L.D., F.A.C.S. Philadelphia: W. B. Saunders Co. 1919.

The eighth, revised, and slightly enlarged edition of this excellent modern handbook of surgery is entirely in keeping with the author's previous editions. It has been improved by a certain amount of rearrangement of sections and sub-headings, a few new and valuable illustrations have been added, and each section has been enlarged to some extent by fuller details of both diagnosis and treatment.

The volume has been brought thoroughly up to date by the addition of the latest literature on war surgery which includes the details of Carrel-Dakin treatment, bone-plating, and grafting and other important steps made in surgery by the war. The number of operations described for various conditions has been increased, a much more complete and recent reference to the literature made in the text, and more space devoted to surgical tuberculosis and to artificial respiration. An excellent and profusely illustrated chapter has been contributed by Chevalier Jackson on Laryngoscopy and Bronchoscopy. The only sections seemingly not up to date are those on cutaneous burns and the use of radium, which remain essentially as in the sixth edition. The book, however, serves as an excellent up-to-date hand book of modern surgery.

War Neuroses and Shell Shock. By FREDERICK W. MOTT, M.D. London: Henry Frowde, Hodder and Stoughton. 1919.

One of the most important problems of reconstruction and the one, perhaps, with which it is most difficult to deal, is the treatment of men still suffering from war neuroses and shell shock. The author of *War Neuroses and Shell Shock* has brought together in this book conclusions based both on his clinical observations and his original anatomical research into the relation existing between shell shock and gas poisoning and the central nervous system. The importance of these observations may be realized upon consideration of the fact that shell shock, neurosis, or psychosis are responsible for one-seventh of the causes of all the soldiers who have been discharged from the army for permanent disability. Colonel Mott has described a great many of these cases, explaining the effects of high explosives on the central nervous system, different forms of shock, the signs and symptoms of commotional shock and severe emotional shock following commotion. His summary of histological and anatomical changes caused by shell shock are enlightening. The author discusses the possibility of CO poisoning as the cause of death in cases where no external injury can be observed, and describes the symptoms, after-effects, and treatment of these cases. Methods are presented for the treatment of war psychoneuroses, of shell shock and neurasthenia, hysterical paralyses, contracture, mutism, and hysterical sensory conditions. The significance of dreams and the importance of occupation and the establishment of an atmosphere of cure are emphasized. The book is illustrated by a number of plates and by excellent photographs showing the condition of patients before and after treatment. To those who may be discouraged by the apparent hopelessness of many cases, this volume brings the encouraging record of successful treatment in a great number of instances during the war.

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MATERNITY AID.

Obstetrics has long been regarded as the tap root of general practice. This would be a proper situation were childbirth always normal. In the year 1918, in Massachusetts, 804 women died as a result of pregnancy or childbirth. The death rate in childbirth has increased steadily from 38 per 10,000 live births in 1901 to 84 in 1918. The proportion of deaths from puerperal septicaemia has more than doubled.

The proof that any such death rate is preventable is shown by the statistics of the Out-Patient Department of the Boston Lying-In Hospital. In the last fifteen years the death rate has averaged 11 per 10,000 births. These patients were cared for in their homes by students supervised by trained obstetric specialists. The good results have largely been accomplished by prenatal care.

In other words the women of Massachusetts stand about eight times as great a chance of death in childbirth if cared for by their physicians or by midwives as do the women in the poorer parts of Boston under the care of careful but inexperienced students properly supervised by experts.

The condition of obstetrics in the State is intolerable. Obstetric practice must be improved. If improvement is not brought about by the medical profession it will be forced upon the physicians by the public. We must recognize that the obstetricians have proved that they can accomplish results so satisfactory that not only in the larger cities but throughout the State obstetric clinics and consultants must be maintained.

The movement for maternity aid in this State was initiated by those who recognized the difficulties of women at the time of childbirth. The movement has been taken up by others who have considered the problem rather from the aspect of public health. Thus various motives have induced our officials and legislators to favor maternity aid in some form or other. Opposition to proposed legislation on the ground that it is socialistic is futile unless some alternative is offered to remedy the present conditions, which would be considered appalling if they had not arisen so insidiously.

The medical profession must set its house in order or the public will undertake to do so, perhaps in ways not the most wise.

The time for a complacent request to be let alone with conditions as they are has gone by. Reform must come in one way or another; no selfish motives can stand in the way of progress.

A very able commission has been appointed by the Governor to consider and report upon maternity aid in November. The President of the Massachusetts Medical Society, who is chairman of the Joint Committee on Legislation of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society, is the chairman of the commission.

The duties imposed upon that commission are arduous and perplexing, but the opportunity to point out the path of progress is unique. It is impossible to bring every individual to the same opinion, but it will be a bitter disappointment if the commission does not present such a clear statement of facts coupled with recommendations so sane as to gain practically the united support of the medical profession. If this is done action by the Legislature is not to be feared.

Meantime the JOURNAL urges consideration of this great problem by all physicians. Let the general practitioner explain the disproportionately large mortality to which we have referred The time is all too short to waste it on resolutions against socialistic tendencies in legislation which have little weight if no alternative measures are suggested. Let the State Department of Public Health give us the best analysis it can of the causes of death. The JOURNAL will welcome frank discussion.

Let us look the facts squarely in the face and seek the best methods whereby we may improve obstetrics. Let us look forward to a recognition of the specialty of obstetrics, with the establishment of obstetric clinics throughout the State.

THE INCREASING NEED FOR FIRST AID TRAINING.

THE American Red Cross sees in the widening disparity between the increase of our population, and the decrease in the number of graduates from medical institutions an added reason for promoting general training in first aid and accident prevention.

The present standard of premedical education has lengthened the time and increased the cost of medical training, thus curtailing to a large extent the yearly attendance at the medical colleges. In 1904, there were 28,142 students attending the various medical colleges of the United States, this being the largest number in any year during the period 1880-1919. The total number of medical students in the schools for the year ending June, 1919, excluding premedical, special and post-graduate students, was 13,052. There was a decrease in 1919 of 578 below that of 1918.

The high standard of efficiency established through the reclassification of medical colleges has caused the closing of many of the smaller and more poorly equipped ones. In 1906 there were 162 medical colleges in the United States; in 1919 there were only 85 recognized medical colleges. In 1903 there were 5,698 graduates from all medical colleges, one graduate for every 14,020 of population. This number has gradually declined in spite of the increase in population, until, in 1919, there were only 2,656 graduates, a decrease of 14 below that of 1918,—one graduate for each 40,230 people.

The longer hours and smaller remuneration of country practice have caused many physicians to move from the rural districts to the larger towns, where conditions are less difficult and remuneration greater. Many practitioners desiring to specialize are attracted to the cities from the rural districts.

That the high standard of medical education must be maintained goes without saying, if we are to render efficient service to those suffering with disease. Nevertheless, the shortage of practitioners has caused increased suffering in certain localities and is very severely felt. Those who reside in the sparsely settled areas are left to the care of untrained assistants and serious illness or loss of life often results. Numerous illnesses and injuries occur which, when improperly treated or if treatment is too long delayed, may prove fatal.

Universal first aid training would supplement the work of the physicians and take from them the burden of caring for unimportant injuries. It would release their services for more serious cases, and would also place the victims of accidents in the physicians' hands in the best possible condition for future recovery.

MEDICAL RELIEF WORK IN THE NEAR EAST.

MEDICAL relief work in the Near East presents many vexatious problems. *The Acorne*, official organ of the Near East Relief in Constantinople, devotes space in each number to a discussion of these difficulties in order that physicians in one district may learn how their problems were solved by relief workers in another. Dr. John W. O'Meara, graduate of Harvard Medical College, wrote in a recent issue of *The Acorne*:

"Judging by those seen in clinic and hospital, I should say that more than half the people in the Caesarea district have roundworms. Santonin, said to be a reliable vermifuge, I have found worthless (using it in doses up to five grains, repeating two and three times). In a dozen instances of abdominal operations, I have seen intestines lined with the parasites, containing thirty to fifty at least, yet when full doses of this vermifuge were given later, and usually repeated, each time the details of a well-recommended routine being carefully observed, not more than three or four worms have been obtained. In the clinic, where therapeutic details have to be left to the patient, results are even more discouraging. I am trying to get hold of a better drug than santonin.

"For favus, the natives here shave the heads and paint on a thick layer of pitch, which is removed in one piece, preferably under anesthesia, in from ten to fifteen days. The idea is to have the hair grow into the pitch and be removed with it. It seems good in theory, but thus far I have not made sufficient experiments with the treatment to judge as to its efficacy."

Near East relief workers say that one of the great handicaps in the medical relief work is the native doctor. He usually refuses to perform operations, leaving it to the barbers as in days of old. Infections of the worst sort result, and nurses with the organization are kept busy caring for the ills developed from "barber operations."

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MEDICAL NOTES.

AMERICAN PUBLIC HEALTH ASSOCIATION MEETING.—The American Public Health Association will meet in San Francisco, September 13-17. Special cars will leave from Boston and New York City on Tuesday, September 7, connecting with a special train leaving Chicago Wednesday, September 8, 10.30 P.M., over the C. & N. W. The program will include the following entries: A Symposium on the Relative Functions of Official and Non-Official Health Organizations; Western Health Problems; Narcotic Control; Food Poisoning; Organization for Child Hygiene; Mental Hygiene; Health Centers. The foregoing subjects and others will be distributed among the following ten sectional groups: General Sessions; Public Health Administration; Laboratory; Vital Statistics; Sociological; Sanitary Engineering; Industrial Hygiene; Food and Drugs; Personal Hygiene; Child Hygiene. Detailed information may be obtained from the office of the Association at Boston.

BLINDNESS IN ALGERIA AND TUNISIA.—A medical examination conducted on behalf of the American Red Cross in Algeria and Tunisia recently, disclosed the fact that in the oasis towns of the Sahara ten per cent. of the native population is blind, whereas in France there are only three blind persons for each thousand inhabitants.

It showed, too, that the present epidemic of trachoma has made its greatest headway among the younger children, both European and native. At Boufarik 27% of the European children and 56% of the native are affected; at Marengo 33% of the Europeans and 57% of the natives. Of 6,025 children examined in different parts of Algeria, 1,650, or 24%, were trachomatose. In the large half European, half native towns along the Mediterranean, 25 persons in each thousand are blind.

Dr. Edmond Sergent, Director of the Pasteur Institute of Algiers, in one small settlement in the department of Oran, found 156 trachomatose cases among a total of 236 inhabitants.

MORTALITY AMONG ITALIAN CHARCOAL BURNERS.—The universal diet of polenta, and life in the unhealthy marshes surrounding the town, have caused the deaths of thousands of Italian charcoal burners in the district about Citta di Castello within the last few months. Pellagra, malaria, and influenza have caused these deaths, it is stated by Italian and American Red Cross doctors who have been investigating the situation.

The great number of deaths has created an orphan problem which the American Red Cross and the Italian authorities are doing their best to remedy. A colony has been established at Citta di Castello, where the Junior Red Cross is helping to take care of the children.

AWARD OF DEGREES BY THE UNIVERSITY OF ST. ANDREWS.—The degree of LL.D. has been conferred upon the following men by the University of St. Andrews: Dr. Leon Fredericq, for nearly forty years professor of pathology in the University of Liège, Belgium; Dr. Norman Walker, inspector of anatomy for Scotland and direct representative of the profession in Scotland on the General Medical Council; and Mr. W. J. Matheson, president of the biological laboratory of the Brooklyn Institute and scientific advisor in chemistry to the Board of Health for the city of New York.

AMERICAN REPRESENTATIVES AT THE INTER-ALLIED SURGICAL CONFERENCE.—It has been announced that Brigadier-General M. T. Finney, Colonel John B. Walker, Lieutenant-Colonel Robert H. Ivy, and Lieutenant Colonel Murray

S. Danforth, Medical Reserve Corps, have been ordered to Paris to attend the meeting of the Interallied Surgical Conference.

Tuberculosis Mortality in Germany.—The following statistics compiled by J. Parisot (*Rev. Méd. de l'Est.*) have been published in a recent issue of the *British Medical Journal*:

> In Germany, and especially in the Rhine provinces, the mortality from tuberculosis before the war was progressively diminishing, and in 1914 did not exceed, and in many cases did not reach, 20 per 10,000 in towns and 15 per 10,000 in country districts. In 1914 the number of deaths from tuberculosis was approximately half of what it was in 1900. On the other hand, the influence of the war on the mortality from tuberculosis was shown by a progressive increase in the death rate, greater and more rapid in the urban than in the rural population. In large towns, such as Mayence and Frankfort, the tuberculosis mortality in 1918-19 was approximately double what it was in 1914. The mortality from tuberculosis diminished in infants of one year and under (a fact explained by the fall in the birth rate), remained stationary in those aged from one to five years, and showed a slight increase from five to fifteen years. The mortality was more than doubled for persons aged from 15 to 30 (327 deaths in 1918 as compared with 144 in 1914 for a population of 400,000), amounted to 534 as compared with 323 in 1914 in those from 30 to 60, and was exactly double (114 as compared with 57) in those above 60. The mortality from tuberculosis was a little higher in men than in women, which is explained by the absence of men on military service, these statistics applying exclusively to the civilian population.

Vital Statistics of England and Wales.—The following statistics of England and Wales have been recorded in the eighty-first annual report of the Registrar General for the year 1918:

> The birth rate in 1918 was 17.7 per 1,000, being the lowest on record. This rate was 0.1 per 1,000 below that recorded in 1917, and 6.1 below that for 1914, which, particularly so far as the birth rate was concerned, might be regarded as the last year unaffected by war conditions. Even this large reduction, however, amounting in all to nearly 26 per cent. in 1918 as compared with 1914, was believed to compare very favorably with the experience of other belligerent countries. The provisional figures for 1919 indicate a recovery, showing an increase of 0.8 per 1,000.
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> The civilian death rate in 1918 was 17.6 per 1,000, being 3.2 above the rate in the preceding year. The increased mortality was due to the epidemic of influenza. Apart from this, the year was one of extraordinary healthiness. The provisional figures for 1919 indicate a fall of about 3.8 per 1,000, notwithstanding the continuance of the epidemic into the early part of the year.
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> Infantile mortality was 97 per 1,000 births, being one per 1,000 above the rate in the preceding year, but 10 per 1,000 below the average of the 10 years, 1908-17. It is one of the four lowest rates hitherto recorded. The provisional figures for 1919 show a rate of 89 per 1,000 births, or two per 1,000 births below that of 1916, which at 91 per 1,000 was the lowest hitherto returned.
>
> The estimate of the total civilian population for the whole of England and Wales is given as 13,777,100 civilian males and 19,697,600 females, making a total of 33,474,700 persons. The marriages during the year numbered 287,166, and the marriage rates of 51.9 males and 41.0 for females represented a considerable advance on the low records of the previous year.
>
> The births registered during 1918 numbered 662,661, or 5,685 fewer than in the previous year, during which 210,750 fewer births had been registered than in 1914, while the deaths of 611,861 were registered during the same period. Of the deaths, 314,704 were of males and 297,157 of females. The males included 24,033 non-civilians.

Elections to the Association of American Physicians.—It has been announced that the Association of American Physicians has elected as honorary members Sir Clifford Allbut of the University of Cambridge, M. Roux, formerly director of the Pasteur Institute, Paris; Professor Heger of Brussels, and Professor Marchiafava of Rome.

Appointment of Dr. Ferdinand H. Haessler.—Dr. Ferdinand H. Haessler has been appointed resident pathologist in the Department for Nervous and Mental Diseases in the Pennsylvania Hospital at Philadelphia.

The National Anaesthesia Research Society.—The officers of the National Anaesthesia Research Society have been advised of several research workers who will present the results of their experiments and observations at the annual meeting of the Society at Hotel William Penn, Pittsburgh, October 4-8. Prizes aggregating $200 have been offered for the best research papers submitted.

Within 30 days after the challenge of Indianapolis, Toledo replied with 100% enrollment of its recognized anaesthetists, as members of the National Anaesthesia Research Society. The Society, only six months old, already has a membership closely approximating much older institutions, and is already represented in 26 states and Canada.

A correspondent of the N.A.R.S., writing of the conference of anaesthetists held in connection with the Fifth Annual Convention of the Catholic Hospital Association at St. Paul, says it was decided that ether with nitrous oxid-oxygen is the safest anaesthetic. Chloroform was in disfavor because of the large number of casualties from anaesthesia said to result from its use.

The N.A.R.S. has been advised that 14 county societies in California have adopted resolutions within the last few months reading, "That we favor the limitation of the administration of anaesthetics to regularly licensed physicians and surgeons."

In connection with this county movement the N.A.R.S. is advised that the House of Delegates of the California State Medical Association, meeting at Santa Barbara, took formal action:

1. That the administration of an anaesthetic is always the function of a legally qualified medical practitioner.
2. That the administration is best performed by physicians specially trained or who have made a specialty of this subject.
3. That wherever available, hospitals and public institutions, where anaesthetics are administered, employ only physicians as anaesthetists.
4. That this Society condemns, under all circumstances, the training and qualification of lay persons as anaesthetists.
5. That no hospital shall be deemed to have acceptable standings which charges a fee for an anaesthetic unless such anaesthetic has been administered by a legally qualified physician.

AWARD OF THE FLORENCE NIGHTINGALE MEDAL.—Six American women, all of whom saw service in the World War, have just been awarded the Florence Nightingale Medal, the highest decoration of the whole nursing world. The distinction, which is bestowed by the International Committee of the Red Cross, Geneva, may be awarded only one nurse of any nation annually;—thus these six women represent America's nursing roll of honor since the outbreak of war in 1914. The terms under which the decoration was created in 1912 also provide that it be granted "only to trained nurses who may have especially distinguished themselves by great and exceptional devotion to the sick and wounded in peace or war."

These nurses, all of whom served with the American Red Cross, are Miss Helen Scott Hay of Washington, D. C., Miss Florence Merriam Johnson of New York City, Miss Martha M. Russell of Boulder, Colorado, Miss Linda K. Meirs of Boston, Miss Alma E. Foerster of Chicago, and Miss Mary E. Gladwin of New York City.

PUBLIC HEALTH LECTURES AMONG THE INDIANS.—Not many years ago, when a crowd of Sioux Indians gathered together in an afternoon there was usually a considerable amount of battle, murder, and sudden death among them. Nowadays, however, things are different. When the Sious Indians in Minnesota get together it is to listen to public health lectures delivered in their own language, and frequently by members of their own tribe. There is a great deal of tuberculosis among these Indians, and the American Red Cross is endeavoring by means of lectures to educate them in preventive measures against the disease. One old chief, Two Hawks, is an eloquent lecturer for the Red Cross. A hundred years ago it would have been a brave paleface who would have delivered a lecture to an audience of Sioux. Some such lectures were delivered, but they were usually in the nature of deathbed remarks. Today, however, the Indians look upon these things differently, and are eager to learn all that the Red Cross can teach them.

ANTI-MALARIA CAMPAIGN IN SOUTH GEORGIA.—For many years malaria has caused a loss of six million dollars, and, among the negroes alone a loss of over a million and a half working days each year in South Georgia. It infects from 20 to 100 per cent. of the people in the communities, and has caused the death of 800 people annually.

Recently the American Red Cross, in coöperation with the State Board of Health, the Georgia Association, the U. S. Public Health Service, and several large corporations, has undertaken an extensive anti-malaria campaign, moving pictures, lectures and the press all have been utilized in calling the attention of the people to the importance of destroying the mosquito and all its breeding places.

The campaign has already been very successful. Three teams that went out early in April visited more than twenty counties during that month, giving from three to five "shows" in the rural sections. One team reached 4300 people, and the others were similarly successful. The cities were avoided in favor of the rural districts where both the need and the interest were greatest. Hundreds of people drove to the schoolhouses from distances of fifteen to twenty miles.

The report of one of the teams shows that Fort Gaines, Georgia, has agreed to raise $2,500 to stamp out malaria, and will secure the services of a health officer; that Randolph County has applied for a public health nurse and will ask the grand jury to recommend the Ellis health law and the appointment of a public health officer; that Terrell County will employ a sanitary engineer to stamp out malaria; that Thomas County is raising $5,000 to show the outlying districts what can be done; that Colquitt County is asking for a public health nurse; that in Moultrie the Chamber of Commerce will ask the City Council for an appropriation to fight malaria; that in Lee County, Smithville and Leesburg will issue $6,500 in bonds to fight malaria; that in all of these counties and in others the people have been educated and aroused.

RED CROSS EMERGENCY SURGICAL DRESSINGS PARCEL.—A standard emergency surgical dressings parcel, to be produced by the Red Cross chapters, and to be kept by them in quantities sufficient to meet readily whatever emergencies each chapter feels may be expected, has been adopted by the American Red Cross. It has been officially endorsed by the Surgeon-General of the Army, the American College of Surgeons, the Surgical Section of the American Medical Association, and the Conference Board of Physicians in Industrial Practice. A manual of instructions for the preparation and production of the parcels has been issued to the chapters, and supplies also will be sent them. The parcel is wrapped in heavy brown paper, sterilized and paraffined, and contains 10 gauze compresses, 1 absorbent pad, 1 rolled wadding bandage, 1 muslin bandage, 1 gauze bandage, 1 triangular bandage and safety pin.

BOSTON AND MASSACHUSETTS.

BERKSHIRE DISTRICT MEDICAL SOCIETY.—Henry James Millard, M.D., a retired Fellow of the Massachusetts Medical Society, aged 84 years, died at his home in North Adams, May 30, 1920.

Dr. Millard, son of the late Stephen C. and Harriet Richmond Millard, was born in Stamford, Vt. He received his early training and education in the schools of his native town. Arriving at manhood, he became fond of travel and taught school in several of the western states. His medical course began at the University of Vermont and was completed at the old Berkshire Medical College, in Pittsfield in 1864. Soon after his graduation, he enlisted in the Union Army and remained till the close of the Civil War, having at the time of his honorable discharge the rank of Assistant Surgeon of the 34th Regimental Massachusetts Volunteers. At the close of the war, Dr. Millard settled in North Adams, where he practised medicine for more than 50 years, during all of which period he was an incessant worker, devoted to his profession and his large clientage. He held honorable office in medical societies, church, city and Grand Army circles. As a member of the Berkshire Medical Society he was particularly devoted, and was greatly beloved by all its members.

As a Society, we, therefore, deem it an honor and privilege to cherish his memory by making entry in the official records of the Society of our late brother's notable career, and by sending a copy to his bereaved family.

Signed,
THE BERKSHIRE DISTRICT MEDICAL SOCIETY.
CHARLES W. WRIGHT,
VANDERPOEL ADRIANCE,
ORLAND J. BROWN,
Committee.

TUBERCULOSIS AMONG PRISONERS IN MASSACHUSETTS.—A report which has been submitted to the State Department of Correction by Dr. William J. Gallivan, director of the Division of Tuberculosis of the State Department of Health, shows that out of 1551 inmates of State and County penal institutions examined for tuberculosis only seven active cases were found. This is the first time that such a comprehensive examination of the prisoners of the Commonwealth has been made, all the institutions having been visited with the exception of the Dedham and Springfield jails. Not one active case was found in the two institutions under direct

State control which were visited,—the State Prison at Charlestown and the Concord Reformatory, which have a combined population of 925. The seven active cases found were distributed as follows: Barnstable, 1; Deer Island, 1; Lawrence, 1; New Bedford, 2; Plymouth, 1; and Worcester, 1. These cases were transferred to the State Hospital at West Rutland.

It is probable that approximately 110,000 people die annually from tuberculosis in the United States, and that 1,100,000 people, or one per cent. of the population, suffer from it perenially. This percentage is more than double that of the prisoners found with the disease.

CENTRAL NEW ENGLAND SANITARIUM AT RUTLAND.—A bequest of five hundred dollars was made to the Central New England Sanitarium at Rutland in the will of the late Dr. Frank B. Brown.

ANIMAL HEALTH IN MASSACHUSETTS.—The Animal Division of the State Department of Agriculture has reported an improvement in the health of animals in Massachusetts. Glanders has disappeared almost entirely, tuberculosis is decreasing, hog cholera is well controlled, and anthrax is under successful regulation. Hoof and mouth disease is said to occur only in cases brought in from outside the state.

NEW ENGLAND NOTES.

THE BOWDOIN MEDICAL SCHOOL.—The Bowdoin Medical School of Portland, Maine, has received notice that the late Frank Byron Brown, M.D., of Boston, of the Class of 1887, has bequeathed to the school one thousand dollars.

THE FRENCH ORPHANAGE FUND.—The New England Branch of the French Orphanage Fund has acknowledged the total amount of $607,993.62.

Obituary.

IRAH EATON CHASE, M.D.

DR. IRAH EATON CHASE, the oldest Fellow of the Massachusetts Medical Society, died at his home in Haverhill September 24, 1919, at the age of 88. He was a graduate of the Berkshire Medical Institution of Pittsfield in 1852 and of the Jefferson Medical College of Philadelphia the following year. He joined the Massachusetts Medical Society in 1855 and settled in Haverhill, where he practised until he retired in 1897.

Miscellany.

MISBRANDED MEDICINE CASES.

A LARGER number of seizures and prosecutions on the charge of false and fraudulent labeling of proprietary preparations have been made during the past year than in any other year since the enactment of the Federal Food and Drugs Act, it has been announced in a recent statement by officials of the Bureau of Chemistry, United States Department of Agriculture. The disposition of the actions in the courts is described as follows:

"Sal-Sano" was misbranded, it was alleged by the Government, for the reason that certain statements on the labels of the containers falsely and fraudulently represented it as a cure for diabetes. An analysis of this product showed that it consisted of 3.2 per cent. water, 19.9 per cent. sodium chlorid or common salt, 13.6 per cent. sodium phosphate, 42.2 per cent. sodium bicarbonate and 20 per cent. sodium sulphate, with small quantities of iron, aluminum, and potassium salts present as impurities. The court imposed a fine of $100.

"Indian Wyanoke" was stated by the Government to be falsely and fraudulently represented as a remedy for every form of external or internal congestion, soreness, pain, inflammation, injury or disease, especially of the throat and lungs; acute, chronic, malignant or diphtheritic sore throat, tonsillitis, swollen glands, coughs, catarrh, croup, consumption, pleurisy, and pneumonia. In a booklet accompanying the package the product was represented also as a remedy for whooping cough, lung congestion, lung fever, hay fever, deafness, ringing in the ears, sores in the head, sore eyes, granulations and inflammations of the lids, sore nose, rheumatism, rheumatic headache, muscular disorders, stiff neck, lame back, spinal irritability, numbness, incipient or creeping paralysis, palsy, hives, Cuban itch, salt rheum, eczema, felons, runround, whitlow, boils, carbuncles, eruptions, enteritis, peritonitis, appendicitis, baldness, dandruff and falling hair. An analysis of sample of this article showed that it consisted essentially of chloroform, ammonia, menthol, glycerin, turpentinelike oils, alcohol and water. The defendant entered a plea of guilty, and the court imposed a fine of $25 and costs.

In a case of "Gregory's Antiseptic Oil" the Government alleged that certain statements appearing on the label and in a circular falsely and fraudulently represented it as a cure for neuralgia, rheumatism, pneumonia, lung troubles, asthma, coughs, pleurisy, backache, burns, headache, flux, all bowel complaints, sore throat, catarrh of stomach or bowels, consumption, kidney troubles, blind staggers, distemper, glanders, fistula, poll evil, bighead, bigjaw, sweeny, blackleg and hog cholera. This preparation was found on analysis to consist of approximately 89 per cent. kerosene oil, small amounts of oil of cloves, oil of cassia, oil of sassafras and a trace of camphor and pepper resins. The defendant entered a plea of guilty and the court imposed a fine of $50.

"McGraw's Liquid Herbs of Youth" was misbranded, the Government alleged among other things, for the reason that certain statements appearing on the cartons inclosing the bottles falsely and fraudulently represented it to be effective as a cure for all stomach, liver and kidney diseases, and a number of other ailments; as well as to invigorate the nervous system, tone and strengthen the digestive organs, impart a new life and energy to all functions of the body, and to strengthen and build up the system, while it eradicates disease. An analysis of the article showed that it contained essentially Epsom salt, senna, red pepper, quassia, alcohol and water, flavored with methyl salicylate. The defendant entered a plea of guilty and the court imposed a fine of $10.

A shipment of "P P P Prickley Ash, Poke Root, Potassium and Stillingia" was considered by the Government to be misbranded for the reason that certain statements on the cartons and circulars regarding the curative and therapeutic effect of the preparation were false and fraudulent in that the article contained no ingredient or combination of ingredients capable of producing the therapeutic effect claimed for it. No claimant appearing for the property which was seized, judgment of condemnation and forfeiture was entered, and it was ordered by the court that the product should be destroyed by the United States Marshal.

An information was filed by the Government for the interstate shipment of quantities of articles labeled in part "acetanilid tablets," "nitroglycerine tablets," acetyl salicylic acid tablets," "acetphenetidin and salol tablets," and quinine sulphate tablets" which were adulterated and misbranded. Adulteration was charged because the tablets fell below the professed standard and quality under which they were sold. Misbranding was alleged for the reason, among others, that there were false and misleading statements on the labels regarding the ingredients. The defendant company entered a plea of guilty to the information, and the court imposed a fine of $25.

"Kampfmueller's Rheumatic Remedy" was the basis of an action, it being alleged by the Government that certain statements appearing on the labels of the cartons and bottles falsely and fraudulently represented it as a remedy for rheumatism, and as a cure for arthritic rheumatism, articular rheumatism, inflammatory rheumatism, muscular rheumatism, and rheumatic fever. Analysis of a sample of the article by the Bureau of Chemistry showed that it consisted essentially of potassium iodid, extract from a laxative plant drug, alcohol and water. The defendant company entered a plea of guilty, and the court imposed a fine of $25.

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Correspondence.

FUTURE OF THE JOURNAL.

Warwick, Mass., July 14, 1920.

Mr. Editor:—

At the regular meeting of the Franklin District Medical Society last evening, Dr. H. G. Stetson, our representative in attendance at the conference to consider the future relationship between the Boston Medical and Surgical Journal and the Massachusetts Medical Society, gave us a review of the proceedings. We understand that there is a desire from those who are to especially consider this question, to get a free expression of opinion from members at large throughout the state. It would seem that the editor-in-chief must be able to devote more time to his work to obtain the best results for the paper and in his assistants' editorship or advisory board there must somehow be secured more responsible coöperation.

How far further financial aid will go to put the Journal on a firm foundation is an open question. The paper must somehow make new history. The writer thought that a privilege might be granted to speak of certain points brought out in our local society's discussion of the subject at Greenfield, through a letter in this way.

The editorial board, for the most part, live in Greater Boston and are specialists and teachers, and it would seem, therefore, that a purely scientific tone might too much pervade a journal when it was depending for its support upon a society, the membership of which are also practitioners in the byways and upon the ordinary highways of the state. At the annual dinner of our Society, Dr. Hugh Cabot, in his discussion of contrasts between Harvard and the University of Michigan, emphasized the responsiveness of a State University to the present needs of every county and hamlet, in practical service. An institution in any sense public must be forever on its guard lest past ideals and ambitions tend to detach it from the service of those who are now taxed, or in any other way assessed, for its support.

The traditions of our JOURNAL are surely worth a bright future and now is the time for getting at the broadest expression of, and considerations as to, a policy that will insure this. The JOURNAL, under its present name would seem as well qualified to serve the medical societies throughout the whole of New England as well as that of our own state. It would also seem, in view of all that has been said, desirable to have a more intimate relationship between the editorial staff and the district societies, small as well as large. It appears to me that this cannot be done by mere correspondence and it would surely be a stimulus, as well as a pleasure, for each of the societies to meet and know men of the editorial staff in a social way. If these men would make such visits, circulating about, the exchange of ideas would be most helpful to all. Cordially,

PAUL W. GOLDSBURY.

PSYCHICAL RESEARCH AND THE PHYSICIAN.

Boston, July 21, 1920.

Mr. Editor:—

In the June 10 number of the JOURNAL, Dr. J. Danforth Taylor essays to speak for the medical profession and dictate very definitely the attitute which should be assumed toward this most interesting subject. His advice may meet the approval of the majority. Be this as it may, the writer feels bound to protest against being included.

To those not familiar with the Proceedings of the Psychical Research Society, which now fill many volumes, it should be said that, besides studying the evidence for survival, the field covered has been most comprehensive, including such subjects as telepathy, visual hallucinations, phantasms of the living, dreams, crystal vision, supernatural perception, automatic writing.

In 1911, W. F. Barrett, F. R. S., Prof. of Experimental Physics, said*: "Those of us who took part in the foundation of the Society were convinced that amid much illusion and deception, there exists an important body of facts hitherto unrecognized by science, which, if incontestably established, would be of supreme importance and interest.

"By applying scientific methods to their investigations these obscure phenomena are being gradually rescued from the disorderly mystery of ignorance."

Dr. Taylor's method of dealing with the subject is most unfortunate. To brand as "unreliable" the statements of some of our greatest scientists because their facts do not fit into his opinions is not at all in accord with the scientific method which he lauds so highly. He says, "Mind is looked upon as the functioning power of the brain, but how can a mind or intelligence exist apart from the brain." One might with propriety answer this riddle by asking, "How can a mind or intelligence exist *with* a brain?" We do not know *how*, but we know it does. With equal fairness those who believe in the "persistence of the stream of consciousness after death" are not obliged to answer the *how*.

The late Professor Hyslop† says, "It was a mistake of scientific skepticism to invoke any pre-conceived ideas about the explanation of things in order to eliminate the consideration of psychic phenomena. The question of fact, not of explanation, is the first consideration of science. . . . A man should never be required to choose between doubt and belief. He should be able to intermingle both in due proportions. The spirit of openmindedness and impartiality is to the intellectual world what brotherhood is to the ethical world. Woe betide the man who does not see this elementary truth, for he is sure to fall into one dogmatism or the other."

Dr. Taylor's quotation from the late Prof. James about the cumulative effect of continued investigation should be interpreted as evidencing this openmindedness of one who believed "only partially" in survival, but not at all in sympathy with Dr. Taylor's dogmatic statement that, when every possible precaution is taken, "phenomena requiring supranormal explanations are conspicuous by their absence."

Whatever view one may take regarding the evidence for survival, the above statement is not true. "Some of the finest and most acute minds of this generation have concluded that when a critical sifting has done its work there is left a solid block of evidence not capable of any naturalistic explanation."‡

Any discussion of this "solid block of evidence" is manifestly out of place here, as our subject is the attitude which the medical profession should assume.

Regarding psycho-therapeutics, Dr. Taylor's advice, "It is his first duty to protect his business, his own peculiar method of specialized industry, by which his intellectual labor obtains its pecuniary rewards," is so bluntly commercial that it should make every conscientious physician blush for shame.

All honor to the broad-minded physicians who are able to relieve mental disturbances by hypnotism, a hypnotic suggestion, re-education and occupational therapy! But one must be dull indeed who fails to recognize that successful suggestive treatment is largely in the hands of non-medical practitioners who seem to make the dose more palatable through the vehicle of all sorts of metaphysical theories. The only valid objection to this irregular practice is that curable diseases are often kept under mental treatment until the curable stage has passed. The precaution taken by the Emmanuel Church healers of requiring a physician's examination before treating the case overcomes this difficulty. The broad-minded physician welcomes any help that will relieve his patient, and in many cases it is difficult to determine the importance of the mental factor. Let us safeguard this irregular psycho-therapy as much as possible, but not denounce it to "protect our business."

In deciding what should be our attitude toward psychical research, one should bear in mind the personnel of the founders of the Society in England in 1882, and the prominence of the scientists who have since carried on its work. The American society was formed in 1884. The first president was Prof. Simon Newcomb, the astronomer, the vice-presidents were Prof. G. Stanley Hall of Clark University, Prof. George S. Fullerton of the University of Pennsylvania, Prof. Edward C. Pickering of Harvard College Observatory, Dr. Henry B. Bowditch and Dr. Charles S. Minot of Harvard Medical School. Dr. Richard Hodgson was its secretary until his death in 1905. Since then until his recent death, Dr. James H. Hyslop, formerly professor of logic at Columbia University, had held the position. He had devoted his entire time and great forensic talent to investigation and critical analysis of psychical phenomena.

The work is financed by endowment and membership fees, and is now established as Section B of the American Institute for Scientific Research.

Since these men felt enough interest in this subject to become the first officers of the Society and to participate in its work, and as many more equally distinguished, including Prof. William James, who served as president, have continued the investigations, Dr. Taylor's advice that we physicians arrogate to ourselves the rôle of "defenders of science and opponents of those things which impair the mind" would seem rather bad form. Such "combating" will not elevate the medical profession in the opinion of the Society for Psychical Research, which is, perhaps, quite as important as our opinion of it.

DAVID W. WELLS.

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* Psychical Research, p. 23.

† Contact with Other Worlds, p. 4.

‡ McComb: The Future Life in the Light of Modern Inquiry.

THE PARIS MEDICAL SCHOOL OF FORTY YEARS AGO.

Mr. Editor:—

I am pleased to supplement the very interesting reminiscences of Prof. Beverley Robinson of the Paris medical school of fifty years ago by a few memories of my own student days in Paris in the years 1876 to 1879.

Some of the members of the Faculty mentioned in his paper had already joined the silent majority. Trousseau and Behier and Maisonneuve were gone, and Grisolle also.

Gosselin, the rotund and rubicund, was surgeon in Nélaton's service at La Charité, and Hardy was in Trousseau's service in the same hospital.

I started in the old building of the ancient Hotel Dieu in the service of Germain See, fortunately replaced at that period by the young Agregé Grancher. The Chef de Clinique was Debove, mentioned by Prof. Robinson, and later a distinguished member of the Faculty.

Grancher was an excellent bedside instructor but a teasing humorist for the unfortunate student making the examination.

Germain See shone better in the lecture room than as a clinician. I soon migrated to La Charité to the service of one of the very popular members of the faculty, Prof. Hardy. He was joint author with Behier of a text-book on "Medicine Interne." He was one of the best clinical instructors of the period, equally able at the bedside and in the amphitheatre. He did not have the courtly pose or the magnificent diction of Jaccoud, but in practical clinical work he was at his best and his patience with an examining student was worthy of admiration.

Hardy's able Chef de Clinique at that period was Landouzy, destined later to be for many years Dean of the Faculty. The last time I saw Prof. Landouzy he was presiding at an Entente Cordiale medical lecture given in the old amphitheatre at the Faculté by a distinguished English physician. Landouzy was then but the shadow of his early days and I was not surprised to learn of his death a few years later. Gosselin was our surgeon at La Charité but we wandered over to Richet's service at the Hotel Dieu and to Prof. Fournier's service at the St. Louis Hospital. Prof. Fournier was a man of magnificent presence and a thorough gentleman. The last time I met him was on a small steamer plying from Havre to Honfleur. He was accompanied by his son-in-law, Jean Charcot, the explorer. Fournier must have been over 80 at that time. It was saddening to remember him as a debonnaire professor at St. Louis' in the 70's. All of his most interesting skin cases were reproduced in beautiful models by the great artist in that genre, Baretta. The great neurologist of the day, Charcot, had crowded Sunday seances at the Salpêtriére. The audience was not always composed of medical men, as his presentations of cases were almost dramatic and evoked much comment in the daily press.

I think Prof. Marie, of these later days, was then Charcot's Chef de Clinique. The men who were young Agregés and Internes in those days have reached professorships and have themselves passed on. Dieulafoy and Albert Robin were young Agregés, Landouzy and Tarnier, Chefs de Clinique.

The men of today are a later generation. Chauffard was then a student. Prof. Gilbert, now at the Hotel Dieu, I do not remember even as a student.

Sic transit. The years 1876 to 1879 are not so very ancient but the men who occupied the chairs of the Faculty and the Agregés and Internes who battled to succeed to their places have all passed away. The men of that day I remember best were Hardy, Jaccoud, Germain See, Gubler, whose work on therapeutics I assisted in translating, Grancher, Pinard, Tarnier, Bucquoy and Magnan at l'Aisle St. Anne. The surgeons were the venerable Richet at the Hotel Dieu, Verneuil, Gosselin and, among the younger men, Berger. Within the last ten years, it seemed like old times to listen to Dieulafoy and Landouzy and Robin, but at the time of my last visit to the Hotel Dieu and to the amphitheatre of the Faculty in the early spring of 1914 I saw no familiar faces and the medical world I had known in the 70's of the last century had definitively passed away.

M. J. Halloran, M.D. Worcester, Mass.

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SPECIAL COMMISSION TO INVESTIGATE MATERNITY BENEFITS.

To the Medical Profession:

The Commission, which is seeking all possible information upon the question of the advisability of state aid to childbearing women and their infants, earnestly asks the coöperation of the medical profession.

All expressions of opinion will be gratefully received. Answers to the following questionnaire are especially requested.

Alfred Worcester, M.D., *Chairman;* Eugene R. Kelley, M.D., Robert W. Kelso, Edward E. Whiting, Helen A. McDonald, Elliot H. Paul, *Secretary,* Merrill E. Champion, M.D., *Director of Investigations.*

QUESTIONNAIRE.

1. Were you engaged in obstetric practice during the year 1919?
2. Would any of your obstetric patients during that year have benefited,—
   (*a*) By more prenatal nursing service? and, if so, how many such.
   (*b*) How many of your patients would have benefited by more nursing service than was available during their confinements?
   (*c*) In how many of your cases would the babies have benefited by follow-up visiting nurses' visits?
3. Had you any lying-in hospital facilities available?
4. How many, if any, of your obstetric patients would have benefited had you been able to care for them in a lying-in hospital?
5. Would the consultation services of obstetric specialists, had such been available, have been an advantage in any, and if so, in how many, of your cases?
6. Do you favor any state assistance in providing,—
   (*a*) Lying-in hospitals?
   (*b*) Nursing service, before, during and after confinement?
   (*c*) Expert obstetric consultants?
   (*d*) If your fee was to be paid from public funds in needy cases, would it, in your opinion, tend to influence poor families to call for your services at the proper time and not to delay too long for the best interests of mother and child?
7. Do you favor the granting of state aid to childbearing women?
   (*a*) By direct gratuity to mother?
   (*b*) By payment of physician's fee.
   (*c*) By limitation of gratuities in accordance with the financial status of the family?
   (*d*) By a general health measure free to all inhabitants of the state?
   If opposed to granting such aid, will you kindly state your reasons?
8. Do you believe that, by any action on the part of the Department of Public Health in the distribution of maternity benefits, it would be possible to reduce,—
   (*a*) Maternal mortality?
   (*b*) Maternal morbidity?
   (*c*) Infant mortality?
   (*d*) Infant morbidfty?
9. Do you believe that such Department of Public Health activities would be helpful or detrimental to the interests and progress of the medical profession?
10. Remarks:

Date: ...... Signature .... Address ....